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Part I: Introduction

Market Discipline and Public Policy: New Complexities in an Old Debate

The financial crisis which started in 2007 destroyed an unimaginably huge amount of global wealth. But it was not only destructive. In some regards it was also creative. It, for example, gave a new boost to one of economics' most eminent and most venerable debates: the debate over whether market discipline yields the best economic results when it is left alone or whether markets need external policy regulation to deliver these results. Instead of mentioning the most important milestones of this century-long debate I merely make explicit, in *pars-pro-toto-fashion*, that already Adam Smith's *Wealth of Nations* is torn between these two ends of the debate. In the face of an *ancien régime* that externally regulated nearly every economic aspect, the unambiguous thrust of the book is to call for less – much less – external regulation of the economy, of foreign trade in particular. But towards the end of the book Smith, nevertheless, emphatically demands that "government takes some pains to prevent" that the laborers' "dexterity at [their] own particular trade" which is triggered by the increasing division of labor – the main driver of economic progress, according to Smith – is "acquired at the expense of [laborers'] intellectual, social, and martial virtues" (1776/2008, p. 430). In other words, he demands that the government intervenes into the economy.

In being torn on this issue, Smith sets the tone for the collection of essays at hand. But being torn alone does not suffice. The goal of economic research today is to illuminate the conditions under which market discipline is advantageous and under which public policy is useful while at the same time being open to situations that demand an intelligent interplay between the two forces of economic decision-making. This way, one steers between the Scylla of believing in free markets as a social panacea as well as the Charybdis of believing in governmental policies as an economic cornucopia.

Djankov et al. (2003) show that this issue must not be conceptualized as a choice between two extremes but as a choice on a continuum and, hence, a choice that allows for infinitely many positions between complete market discipline and complete reliance on public policy. Ensuing from their argument that a trade-off exists between preventing disorder and preventing dictatorship – preventing the former through more public policy, the latter through more private ownership – they provide a model that picks up four different possibilities on the continuum (2003, p. 599). In ever growing powers of public policy vis-à-vis market power this model differentiates: 1) market discipline, 2) private litigation, 3) public enforcement through

regulation, and 4) state ownership. Obviously, the four strategies are "not", as the authors point out, "mutually exclusive" (2003, p. 601). To explain these strategies Djankov et al. refer to the following example:

"Suppose that society wants to have broad and liquid securities markets and, to this end, deems it desirable that firms issuing equity disclose accurate information about their circumstances. This society has four basic institutional strategies for the enforcement of good conduct. First, the market discipline solution relies on the incentives of issuers themselves, or of their underwriters, to disclose the truth about the securities because they need to establish a reputation for credibility to raise funds in the future. Second, the society can rely on private suits by buyers of securities who feel that they have been cheated by the issuers, under the general doctrines of contract or tort. For this, the society needs a court and a judge. The question for the court is whether the issuer disclosed inaccurate information or failed to disclose material information. Third, the society can designate a public regulatory agency, which mandates what should be disclosed by security issuers, inspects their books and disclosures, and penalizes issuers and underwriters who break its rules. Between private litigation and full-scale regulation, the regulator can establish the rules for security issuance, but leave the enforcement of these rules to private litigation by the wronged investors. Fourth, the society can nationalize security issuance. A company wishing to raise capital must relinquish the inspection, disclosure, and sale of securities to the state." (2003, p. 601)

The collection of essays at hand connects to the first, the second and the third strategy of Djankov et al. (2003) whereas the fourth, state ownership, is not considered. Relying on a paper by Shleifer (2005), Djankov et al.'s model can be amended with the observation that the differences between the second and the third strategy – private litigation and public enforcement through regulation – should not be overemphasized. After all, the judges who litigate in the second strategy must also be considered, just like the regulators in the third strategy, government agents. Therefore, strategies two and three can both be subsumed under public policy.

Recent literature has produced a tremendous amount of papers that try to determine the conditions under which rather the market-discipline-strategy or either the private-litigation- and the public-enforcement-through-regulation-strategy (which are here, for reasons of simplicity, subsumed under the term 'public policy') is more prone to yield the desired overall results. Thereby it is important to be aware that this is not necessarily an either-or question.

Instead it is very often crucial to find the optimal interplay between these different modes of economic decision-making.

Furthermore, there is the argument that it is wrong to assume that one kind of regulatory structure always fits (see Mishkin, 2001, p. 95). Building on this argument, it can be stressed that the right balance between market discipline and public policy can be influenced by a region's or a country's economic environment and thereby especially whether the economy experiences a time of volatile or a time of stable markets (ibid.). In general, there is then the recommendation for less public policy in stable times and more in volatile times (ibid.). This implies that a society's decision for a point on Djankov et al.'s (2003) continuum must be revised in the face of different economic environments. Hence, the optimal interplay between market discipline and public policy cannot be determined once and for all but is permanently up for revision.

Berkowitz, Pistor and Richard (2003) as well as Pistor et al. (2003) indicate that a country's level of development is another element that needs to be considered for finding the right interplay between market and policy regulation. These papers provide evidence that a point on the market-discipline-and-public-policy continuum which is suitable for developed countries can trigger massive delay and corruption when adopted by developing countries. Others, such as La Porta, Lopez-de-Silanes and Shleifer (2008), demonstrate that also the legal origins as well as the existing law and how it is enforced determine the optimal interplay on the continuum in question. Regarding the law as an important factor they furthermore elaborate that special attention needs to be paid to the correlation of law and finance.

Among the most recent trends in the research on the continuum we are interested in is the focus on culture. Haniffa and Cooke's paper (2005) can, for example, be interpreted to provide evidence that it is especially the culture of directors on company boards that is an important factor. Bushman et al. (2015) have a close eye on the culture of a specific region or country as it translates into and as it shapes the main institutions of society as a whole. In a 2007-paper, Licht, Goldschmidt and Schwartz, on the other hand, put an emphasis on the wider culture of society (2007). This list merely provides a small selection of recent contributions on the optimal interplay between market discipline and public policy. It could be continued easily.

The essay collection at hand intends to contribute to this research in a number of ways. Especially it wants to do so by applying the insights of this recent literature, which is mostly concerned with companies in general, to the banking sector in particular. That such an

application is important has been a contested issue until a few decades ago. As long as the financial sector was considered to be a mere appendage to the 'real economy', i.e. agriculture, industry and non-financial services, it was hard to argue for the need of special inquiries into the banking sector. In this vein, Joan Robinson announced that "where enterprise leads finance follows" (1952, p. 86). And as late as 1988 Nobel Laureate Robert Lucas remarked that the financial sector is an "over-stressed" determinant of economic growth (1988, p. 6). In the meantime, such sweeping gestures of dismissing the distinct importance of the banking sector have become rare. And since the recent financial crisis and the tremendous impact it had on the rest of the economy it is no longer dubious that the issue of finding the optimal position on the continuum of market discipline and private policy is also of interest to the banking sector in particular and therefore warrants inquiries in its own right.

In making this recent literature fruitful for the banking sector, the essay collection at hand underscores the complexity of the connection between market discipline and public policy. These two general contributions are an upshot of all four essays this collection is composed of. But, of course, each of the essays tries to deliver its own unique contribution to the research area that holds this collection together. Therefore, in the following I shortly introduce the four essays the collection is composed of and highlight each essay's distinct contribution to the research interest that underlies the collection as a whole.

The first and most general paper in this collection of essays starts from experiments in behavioral economics. These experiments were mostly conducted under the aegis of Ernst Fehr. The paper argues that the results of these experiments emphasize the need for coordination – whereby the paper does not assume a position in the debate to what extent this coordination is supposed to rely on market discipline or on public policy – against claims that the economy could be steered based on implicit obligations put on individual actors. Thereby this first paper intends to demonstrate that the issue of the relation between market discipline and public policy cannot be circumvented. In doing so, it paves the way for the three papers to come.

The second paper focuses on the banking sector. It builds a theoretical framework to analyze how sustainability disclosure along materiality criteria affects potential greenwashing. Moreover, the framework is used to illustrate weaknesses in existing disclosure guidelines. With regards to the general research interest of the collection of essays at hand this paper contributes to the question which effects public policy can trigger that is devoted to issues

which are not part of the core of a bank's business model. Based on this, the paper highlights potential shortcomings of disclosure guidelines which need to be avoided to ensure adequate public policy.

To be able to rely on a large dataset, the third paper investigates not only banks but also includes large firms from other sectors of the economy. It studies the effect of mandatory sustainability disclosure regulations on the sustainability disclosure level of firms. As mandatory sustainability disclosure regulations differ across Europe the paper compares companies from Continental Europe with companies from the United Kingdom. The results demonstrate that a positive relationship exists between adherence to voluntary standards and sustainability disclosure as well as between mandatory sustainability disclosure regulations and sustainability disclosure. However, the interaction between adherence to voluntary standards and mandatory sustainability disclosure regulations on the disclosure level of companies indicates that the impact of mandatory disclosure regulations is less pronounced among firms that already adhere to voluntary standards. With regards to the thrust of this collection of papers as such, this third paper prompts the conclusion that to oblige companies which disclose sustainability information on a voluntary basis can reduce such voluntary efforts if mandatory sustainability disclosure regulations are implemented. Under such circumstances companies have a tendency to reduce their disclosure activities to what they are required to do by law instead of offering a surplus of information as they did when no such external regulation was in place. This provides further evidence for the hypothesis that, under certain circumstances, external policy regulation displays a tendency to crowd-out internal market discipline. This finding, in turn, stresses, one more time, the manifold complexities of the connection of market discipline and public policy.

Starting from the observation of the existence of various pleas for integrating environmental, social, and governance factors ('ESG-factors', in short) into the business models of companies, the fourth paper elaborates an index for measuring ESG-criteria. Building on the insights of the three earlier papers of this collection, it assumes that these criteria play out differently depending on the specific circumstances of the business sector in question. In line with the research focus of this essay collection, which was made explicit in the above, the index developed is tailored to the banking industry and within that realm to the needs of globally operating, large banks. The development of the index builds on an empirical analysis of 270 banks which are domiciled in 50 different countries. Furthermore, this fourth and final paper of the essay collection at hand investigates to what extent the proposed index is, at the same time, a reliable indicator of a bank's social and economic success. In analyzing the to and fro

between ESG measures and the business model of banks, the fourth paper provides an apt conclusion to the essay collection as a whole.

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Part II: Research Papers

Wirtschaftsethik – Individualmoral oder Rahmenordnung?
Ein Beitrag zum Einfluss der Verhaltensökonomik auf die Wirtschaftsethik. *

MICHAEL G. FESTL UND DIANA FESTL-PELL **

ZUSAMMENFASSUNG

Dieser Aufsatz untersucht den Einfluss von neuesten Erkenntnissen der Verhaltensökonomik auf die Plausibilität wirtschaftsethischer Ansätze. Bekanntlich hat die Verhaltensökonomik in den letzten Jahren die ausschließliche Fokussierung auf den Homo Oeconomicus als Idealtyp des wirtschaftlichen Akteurs aufgebrochen und durch ein differenzierteres, insbesondere auch altruistischen Handlungsmotiven gerecht werdendes Bild menschlichen Verhaltens weitgehend ersetzt. Im Gegensatz zu bisherigen Untersuchungen wollen wir zeigen, dass diese Erkenntnisse weniger wirtschaftsethische Ansätze stützen, die den Ort der Moral primär beim Individuum sehen, als vielmehr solche, die den Ort der Moral vor allem in der Rahmenordnung erblicken.

Schlagwörter: Wirtschaftsethik, Verhaltensökonomik

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1. Zwischen Individualmoral und Rahmenordnung

Auf dem notorisch umstrittenen Feld der Moral finden sich wohl nur wenige Behauptungen, die eine breitere Übereinstimmung hervorrufen, als die, dass die Wirtschaft moralischer werden muss. Angesichts des gegenwärtigen Zustands der Weltwirtschaft dürfte sich dies so schnell kaum ändern. Sobald aber die Anschlussfrage gestellt wird, wie eine Erhöhung der Moral in der Wirtschaft erreicht werden kann, ist es mit der Eintracht abrupt vorbei. In Bezug auf die Lösung dieser Frage lassen sich, grob gesprochen, zwei Extrempositionen unterscheiden, die als die beiden Enden eines Kontinuums zu verstehen sind. Die eine Seite argumentiert, dass es vor allem die in der Wirtschaft handelnden Akteure sind – insbesondere die Manager –, die die moralische Qualität der Ergebnisse wirtschaftlicher Interaktionen durch moralische Erwägungen in ihren Entscheidungen erhöhen müssen. Die andere Seite vertritt dagegen die Auffassung, dass die Ergebnisse der Wirtschaft nur durch Eingriffe in die der Wirtschaft vorgegebene, gesetzlich festzulegende Rahmenordnung moralischer werden können. Erstere sehen den primären Ort der Moral im Individuum, letztere in der Rahmenordnung. In der Wirtschaftsethik haben beide Positionen in den letzten nun schon gut 30 Jahren prominente Vertreter gefunden und einen mitunter heftig geführten, die deutschsprachige Wirtschaftsethik nachhaltig prägenden, aber sicherlich auch belebenden Streit ausgelöst. Für die Seite der Individualmoral stehen dabei vor allem Peter Ulrich und seine Schüler. Die Seite der Rahmenordnung wird insbesondere durch Karl Homann und dessen Schüler repräsentiert. Die Mehrzahl der anderen im deutschsprachigen Raum vertretenen wirtschaftsethischen Positionen lässt sich zwischen diesen beiden Polen verorten.[1]

Um diesen verhärteten Konflikt zu entscheiden, wurden schon viele Versuche unternommen. Das hierbei in den vergangenen Jahren aufgekommene Herbeiziehen von Ergebnissen der Verhaltensökonomik stellt dabei schon allein deshalb einen der spannendsten dar, weil es in dieser Teildisziplin der Experimentellen Ökonomik in letzter Zeit zu großen Umwälzungen gekommen ist. Die innerhalb der Verhaltensökonomik durchgeführten Experimente sind bekanntlich gerade dabei, das Paradigma des Homo Oeconomicus als das der ökonomischen Theorieproduktion zugrunde liegende Menschenbild nach und nach durch ein komplexeres und näher an der Realität der menschlichen Präferenzen verortetes Bild zu ersetzen. Ein solch realistischeres Bild wird vor allem der Bereitschaft von Individuen zu Kooperation gerecht,

[1] Wie nahe am jeweiligen Pol die Positionen von Ulrich und Homann tatsächlich stehen, kann hier nicht eingehend untersucht werden. Die tendenzielle Zuordnung ist aber ebenso wenig umstritten, wie die Aussage, dass weder Ulrich noch Homann die jeweilige Position radikal vertreten (können). Einen diese beiden Aussagen bestätigenden Überblick zu Ulrichs und Homanns Ansätzen liefert Gerlach (2009: 841-848 und 863-871).

selbst wenn diese Kooperation mit einem Verlust an individuellen Vorteilen einhergeht oder, um es in den Worten der Ökonomie zu sagen: die Verhaltensökonomik zeigt, dass das Wohlbefinden anderer Teil der Präferenzstruktur von Akteuren ist, womit so etwas wie eine altruistische Wende im Menschenbild der Ökonomie verzeichnet werden kann.[2]

Die Auswirkungen dieser Experimente auf die Wirtschaftsethik sind – so könnte man prima vista meinen – ziemlich eindeutig. Die Verfechter der Rahmenordnung sind mit ihrer Fixierung auf gesetzliche Regelungen und der damit einhergehenden moralischen Entlastung des Individuums gut auf das ökonomische Standardparadigma mit seiner Annahme von egoistisch handelnden Akteuren eingestellt. Indem sie ohnehin davon ausgehen, dass eine Gesellschaft so eingerichtet werden muss, dass sie sich nicht auf das moralische Verhalten der Individuen verlassen braucht, sind sie von Haus aus in Harmonie mit einer unter dem Paradigma des Homo Oeconomicus arbeitenden Ökonomie. Sollte die Ökonomie nun aber evident machen, dass das von den Verfechtern der Individualmoral geforderte moralische Verhalten der Individuen nicht nur ein leeres Postulat ist, sondern tatsächlich gelebt wird, müsste diese Erkenntnis dieser wirtschaftsethischen Position Aufwind verleihen. Damit wäre moralisches Verhalten der Individuen – auf welches die Verfechter der Individualmoral ja bauen – in den Stand einer empirisch nachweisbaren Annahme erhoben und zugleich der wichtigste Einwand der Verfechter der Rahmenordnung entkräftet, wonach der Appell an das moralische Verhalten der Individuen meist auf taube Ohren stößt. Die Gleichung scheint eindeutig: die Ökonomie ersetzt den egoistischen Homo Oeconomicus durch ein altruistisches Menschenbild; weil die Verfechter der Rahmenordnung auf ersteren eingestellt sind und die Verfechter der Individualmoral schon seit jeher auf letzteren zählen, verschiebt die altruistische Wende der Ökonomie das wirtschaftsethische Kräfteverhältnis in Richtung der Verfechter der Individualmoral. Und in der Tat weisen die bisher vorgenommenen Untersuchungen in diese Richtung. Wenn er der an die Verfechter der Individualmoral angelehnten Ulrich-Schule auch keinen eindeutigen Sieg zuspricht, so argumentiert Panther in seiner Untersuchung der Auswirkungen der Verhaltensökonomik auf die Wirtschaftsethik doch eindeutig dafür, dass deren Ergebnisse die Position der Verfechter der Rahmenordnung schwächen (2005). Damit stimmt überein, dass Suchanek, als Homann-Schüler und damit als Vertreter der

[2] Für die Mehrzahl der Ökonomen dürfte diese Aussage über die tatsächlichen Präferenzen von Menschen freilich keine Neuigkeit sein. Neu ist aber, dass es der Verhaltensökonomik gelungen ist, dieses Bild zu systematisieren und auch für ökonomische Untersuchungen zu modellieren. In diesem Sinne kann wohl gesagt werden, dass es in der Verhaltensökonomik nicht darum geht, das Homo-Oeconomicus-Modell zu falsifizieren, sondern vielmehr darum, es durch ein realistischeres und damit freilich komplexeres, aber dennoch für ökonomische Modellierungen praktikables Modell zu ersetzen.

Rahmenordnungsseite, den Ergebnissen der Verhaltensökonomik eine nur geringe Relevanz für die Wirtschaftsethik bescheinigt (2005).

Gegen die Auffassung, dass die Ergebnisse der Verhaltensökonomik die Seite der Individualmoral stärken, möchten wir im vorliegenden Aufsatz zeigen, dass ein genauer Blick auf einen wichtigen Ausschnitt der Verhaltensökonomik eher eine gegenteilige Verschiebung der wirtschaftsethischen Kräfteverhältnisse nahelegt. Um dies zu plausibilisieren, werden wir den Leser zunächst mit Erweiterungen des Ultimatumspiels vertraut machen, welche unter der Ägide von Ernst Fehr durchgeführt wurden und ein sehr einflussreiches Beispiel für die oben beschriebenen Arbeiten innerhalb der Verhaltensökonomik darstellen (Kapitel II). Dies bereitet den Boden, um im Anschluss die kontraintuitiven Ergebnisse der Verhaltensökonomik in Bezug auf die Individualmoral-Rahmenordnung-Debatte der Wirtschaftsethik darzulegen (Kapitel III). Dabei wird einerseits gezeigt werden, dass die untersuchten Aspekte der Verhaltensökonomik die individualmoralische Annahme schwächen, wonach moralischere Individuen auch moralischere Interaktionsergebnisse hervorbringen. Andererseits, dass sie die zentrale Auffassung der Verfechter der Rahmenordnung über notwendige Bedingungen für moralische Interaktionsergebnisse bestätigen.

Sich auf eines der vielen in der Verhaltensökonomik durchgeführten Experimente zu fokussieren, scheint uns unverzichtbar, um konkrete Auswirkungen der altruistischen Wende der Verhaltensökonomik auf die Wirtschaftsethik in den Blick zu bekommen. Fehrs Erweiterungen des Ultimatumspiels sind u.E. nicht nur geeignet, weil sie ein ausgeklügeltes und für dieses Feld repräsentatives Experiment auf dem neuesten Stand dieser Wissenschaft darstellen, sondern auch weil sie gerade die Effekte moralischen oder unmoralischen individuellen Verhaltens auf das Ergebnis von Interaktionen unter bestimmten Rahmenbedingungen in den Blick nehmen. Nicht zufällig beanspruchen die Experimente des Teams um Fehr den bei weitem größten Raum innerhalb der bisher umfassendsten uns bekannten Analyse der Auswirkungen der Verhaltensökonomik auf die Wirtschaftsethik, nämlich Panther (2005). Durch die Einschränkung auf die Arbeiten von Fehr & Co. können wir freilich nicht den Anspruch erheben, den Einfluss der Verhaltensökonomik auf die Wirtschaftsethik umfassend zu beschreiben, wohl aber können wir damit nachweisen, dass deren Implikationen für die Wirtschaftsethik keineswegs so eindeutig in Richtung individualmoralische Seite weisen, wie momentan angenommen.[3]

[3] Eine erschöpfende Analyse müsste neben der Verhaltensökonomik wohl auch Befunden der Evolutionsbiologie sowie der Neurowissenschaft Rechnung tragen. Für diesen Hinweis danken wir einem anonymen Gutachter.

2. Fehrs Modifikationen des Ultimatumspiels

In ihren verhaltensökonomischen Experimenten, u.a. in denen zum Ultimatumspiel, unterscheiden Fehr und seine Mitarbeiter drei Akteurstypen: den bedingungslosen Altruisten (altruistic Cooperator), den Homo Reciprocans (strong Reciprocator) und den Homo Oeconomicus (reciprocal Altruist)[4], wobei sich für die Existenz aller drei Typen empirische Belege finden lassen (Fehr, Fischbacher und Gächter 2002: 3f.). Der bedingungslose Altruist ist dadurch definiert, dass er stets kooperiert und zwar unabhängig davon, ob er dabei ausgebeutet wurde oder erwartet, dass er es wird. Er lebt mithin das christliche Ideal der bedingungslosen Nächstenliebe. Der Homo Reciprocans zeigt dagegen eine „willingness to sacrifice resources for rewarding fair and punishing unfair behavior even if this is costly and provides neither present nor future material rewards for the Reciprocator"(ebd.: 3). Ihm sind faire Ergebnisse wichtig und er lässt sie sich etwas kosten.: Fairness ist ein Element seiner Präferenzstruktur. Allerdings ist er im Gegensatz zum bedingungslosen Altruisten unwillig, sich ausbeuten zu lassen. Er wünscht Kooperation, ist aber bereit, andere zu bestrafen, wenn diese nicht kooperieren. Dagegen ist der Homo Oeconomicus als dritter im Bunde als jemand definiert, der stets darauf aus ist, seinen langfristigen, egoistisch verstandenen Nutzen zu maximieren, ohne dass Fairness ein genuines Element seiner Präferenzstruktur wäre.[5] Um seinen Nutzen langfristig zu maximieren, kann es manchmal nötig sein, kurzfristig zu kooperieren und dabei auf das situative Maximum an Geldeinheiten zu verzichten. Jedoch ist der Homo Oeconomicus im Gegensatz zum Homo Reciprocans weder bereit, kooperatives Verhalten anderer zu belohnen, noch unkooperatives zu bestrafen, wenn er davon ausgeht, dass ihn Belohnung oder Bestrafung Geldeinheiten kosten. Er verkörpert mithin das Menschenbild der ökonomischen Standardtheorie. Mit je zwischen 40 und 60 % sind der Homo Reciprocans

[4] Der reciprocal Altruist ist auch mal bereit, zu kooperieren, obwohl es ihm kurzfristig Nachteile einbringt, wenn er dadurch seinen langfristigen Nutzen maximieren kann. Fehr, Fischbacher und Gächter bezeichnen diesen im Weiteren daher als Egoisten („selfish" 2002: 4). Wir halten es für gerechtfertigt, hier analog vom Homo Oeconomicus zu sprechen, da die verwendete Definition des reciprocal Altruists der Definition des Homo Oeconomicus, als demjenigen, der sein wohlverstandenes Eigeninteresse maximiert, entspricht. Fehrs, Fischbachers und Gächters Definition lautet: „while a Reciprocally altruistic actor is willing to incur short-run costs to help another actor, she does this only because she expects long-term net benefits" (ebd.: 3). Fehr spricht wohl nicht vom Homo Oeconomicus, weil er diesen mit einer kurzsichtigen Maximierung des Eigeninteresses assoziiert. Der reciprocal Altruist ist für Fehr somit der klügere Homo Oeconomicus. Wir halten diese implizit vorgenommene Unterscheidung innerhalb des Homo-Oeconomicus-Konzepts für überflüssig, da von nur kurzfristig agierenden Homo-Oeconomicus, ohnehin kaum mehr jemand ausgeht.

[5] Mitunter wird der Homo Oeconomicus im Unterscheid dazu als Akteur definiert, dessen Präferenzen auch altruistische Anliegen umfassen können. Ein solch offener Vorteilsbegriff wurde paradigmatisch von Gary Becker ausgearbeitet (z.B. 1976). Für die Notwendigkeit auf diesen Hinweis an dieser Stelle danken wir einem sehr hilfreichen anonymen Gutachten.

und der Homo Oeconomicus gemäß der Experimente des Teams um Fehr am häufigsten anzutreffen, wohingegen der bedingungslose Altruist lediglich eine Randerscheinung sei; eine Verteilung, die sich über verschiedene Länder hinweg als stabil erwiesen habe (ebd.: 8).

Das Überraschende an den Experimenten Fehrs ist, dass selbst bei Gleichbleiben der relativen Häufigkeit der drei verschiedenen Typen von Akteuren je nach Setting der Experimente mal ein Ergebnis herauskommt, das den Anschein erweckt, als wären nur Homines Oeconomici, mal ein Ergebnis, das den Anschein erweckt, als wären nur Homines Reciprocantes am Werk. Besonders eindrucksvoll dargestellt haben dies Fischbacher, Fong und Fehr anhand von Variationen des Ultimatumspiels (2009). In der Grundform des Ultimatumspiels müssen sich zwei Spieler über die Verteilung eines Geldbetrages, z.B. 100 Geldeinheiten (GE), einig werden. Der eine Spieler (A) muss dabei dem anderen einen Vorschlag über die Aufteilung der GE unterbreiten. Wenn der andere Spieler (B) den Vorschlag annimmt, kommt die von A vorgeschlagene Verteilung der GE zustande und das Spiel ist beendet. Wenn B jedoch nicht annimmt, bekommt keiner der beiden Spieler auch nur eine GE; die GE gehen also zurück zum Spielleiter und das Spiel ist beendet. Wären alle Menschen Homines Oeconomici, wäre zu erwarten, dass A den kleinsten teilbaren Betrag an GE (zur Vereinfachung wird hierbei in der Regel von 1 GE ausgegangen) anbietet und B dieses Angebot annimmt. Das Gleichgewicht der Verteilung, das zustande kommt, wäre also 99 GE für A und 1 GE für B. B würde diese Verteilung annehmen, da für ihn als Homo Oeconomicus der Zugewinn einer GE stets positiv ist, sprich, besser als gar kein Zugewinn an GE. Da A dies antizipiert, ist es für ihn die nutzenmaximierende Lösung, dem B nur eine 1 GE anzubieten. Tatsächlich zu beobachten ist aber, dass B Angebote unterhalb von 20 % der zu verteilenden Summe mit sehr hoher Wahrscheinlichkeit ablehnt (Fehr, Fischbacher, Gächter 2002: 11). Da A dies erwartet, bietet er B einen höheren Anteil der GE an, um sicherzustellen, dass B die Verteilung akzeptiert. Im Schnitt bekam B gar 42,7 % der Geldeinheiten (Fischbacher, Fong und Fehr 2009: 536).[6]

Es ist allerdings verblüffend, mit welch simplen Modifizierungen der ursprünglichen Struktur des Ultimatumspiels Fischbacher, Fong und Fehr in der Lage sind, das Ergebnis der Interaktion erheblich zu beeinflussen. So führten sie neben B einen zweiten Spieler (B2) in das Ultimatumspiel ein, der gleichzeitig mit B das Angebot von A annehmen oder ablehnen kann. Nehmen sowohl B als auch B2 das Angebot an, wird gelost, welcher von beiden den

[6] Dass das von der Standardtheorie der Ökonomie erwartete Ergebnis einer 99 zu 1 Verteilung nicht erreicht wird, lässt sich freilich dadurch erklären, dass sich nicht alle Akteure wie Homines Oeconomici verhalten und dass auch diejenigen Akteure, die sich wie Homines Oeconomici verhalten, dies antizipieren und dementsprechend ihre Entscheidungen anpassen.

versprochenen Anteil erhält. Nimmt keiner der beiden das Angebot an, kommt der Deal nicht zustande, und niemand bekommt GE (auch A nicht). Nimmt beispielsweise B2 das Angebot an und B lehnt es ab, kommt die von A vorgeschlagene Verteilung der GE zwischen A und B2 zustande; B geht leer aus. Im umgekehrten Fall, B nimmt an und B2 lehnt ab, kommt die Verteilung zwischen A und B zustande; B2 geht leer aus.

Wohingegen im Fall, in dem ein Spieler allein über das Zustandekommen der Verteilung entscheidet, im Schnitt 42,7 % der GE als Verteilung angenommen werden, kam nun im Schnitt eine Verteilung von 25,5 % der GE für die annehmenden Spieler heraus. Die Spieler, die das Angebot annehmen oder ablehnen müssen, können von A nun also mit einem erheblich geringeren Anteil GE abgespeist werden und der Deal kommt trotzdem zustande. Noch eklatanter wird der Unterschied, wenn Fischbacher, Fong und Fehr anstatt einem weiteren potentiellen Annehmer, der von A vorgeschlagenen Verteilung, vier weitere am Spiel teilnehmen lassen. Im Schnitt gingen die angenommenen Angebote dabei sogar auf 16,2 % der GE nach unten (ebd.: 536).

Auffällig ist folgendes: Sobald mehr als ein Spieler die Möglichkeit hat, das Angebot der Verteilung an GE anzunehmen, findet eine Annäherung des Ergebnisses der Interaktionssituation an das Ergebnis statt, das herauskommen würde, wenn sich tatsächlich alle Akteure wie Homines Oeconomici verhalten würden. Da sich gemäß den Experimenten des Teams um Fehr (siehe oben) aber circa 50 % der Akteure grundsätzlich wie Homines Oeconomici und circa 50 % grundsätzlich wie Homines Reciprocantes verhalten, lässt dies darauf schließen, dass die Homines Oeconomici in diesem Fall in der Lage sind, die Interaktionssituation zu dominieren, sprich, sobald ein zweiter potentieller Annehmer der Geldeinheiten ins Experiment eingeführt wird, kommt trotz gleichbleibender Anwesenheit des Anteils an Homines Reciprocantes ein Ergebnis heraus, das erwartet werden würde, wenn der Anteil an Homines Oeconomici gestiegen wäre. Fischbacher, Fong und Fehr explizieren, dass dies auf die Abschwächung des Bestrafungsmechanismus für das eigennützige Verhalten der Homines Oeconomici zurückzuführen ist, welcher aus der Erhöhung der Anzahl potentieller Annehmer der von A vorgeschlagenen Verteilung resultiert (ebd.: 531). Selbst wenn B ein Homo Reciprocans ist – und damit grundsätzlich bereit, unfaires Verhalten zu bestrafen, auch wenn es ihn etwas kostet –, steigt die Wahrscheinlichkeit, dass er ein sehr ungleiches Angebot über die Verteilung der GE annimmt und damit genauso handelt, wie ein Homo Oeconomicus handeln würde.

Wird angenommen, B sei tatsächlich ein Homo Reciprocans – sei also bereit, ein als unfair empfundenes Verhalten As zu bestrafen, selbst wenn ihn dies GE kostet – wird er im konkreten Fall davon abgehalten, ein als unfair empfundenes Angebot As zu bestrafen, weil neben ihm noch ein B2 sitzt, der das Angebot As annehmen könnte. In diesem Fall würde die von A vorgeschlagene Verteilung zwischen A und B2 zustande kommen. B wäre der Dumme. Er würde leer ausgehen, ohne dass A für sein unfaires Verhalten bestraft worden wäre. Wegen der Existenz von B2 kann B die Bestrafung As nicht sicherstellen. Daher entsteht für B ein zusätzlicher Anreiz, das Angebot anzunehmen. Wenn er davon ausgeht, dass A aufgrund des Verhaltens von B2 nicht bestraft wird, hat er zumindest noch die Chance, den angebotenen Teil der GE (welcher ja im Fall beiderseitiger Annahme durch Los zwischen B und B2 zugeteilt wird) zu bekommen. Dies ändert sich nur, wenn er gute Gründe hat, anzunehmen, dass B2 ein unfaires Angebot As ebenfalls ablehnen wird. Dann wird er sich, weil er ein Homo Reciprocans ist, dafür entscheiden, As Angebot ebenfalls abzulehnen, um As Bestrafung für sein unfaires Verhalten sicherzustellen. Wenn nun neben B2 noch ein B3, B4 und B5 mitspielen, wird die Wahrscheinlichkeit, dass A für ein unfaires Angebot bestraft wird, noch kleiner, da es ja ausreicht, wenn lediglich einer der anderen vier potentiellen Annehmer des Angebots eine Bestrafung As durch Annahme verhindert. Dies erklärt, warum der Wert der im Schnitt angenommenen Angebote noch weiter sinkt, sobald vier anstatt nur ein weiterer potentieller Annehmer mitspielen (ebd.: 531f., 540).[7] Aufgrund der konkreten Ausgestaltung des Ultimatumspiels handeln die Homines Reciprocantes so, dass das Ergebnis der Interaktion den Anschein erweckt, als wäre der Anteil an Homines Oeconomici gestiegen. Dabei reicht es freilich schon, wenn die Bs annehmen, dass sich unter ihnen *ein* Homo Oeconomicus befindet, selbst wenn dies eigentlich gar nicht der Fall ist.

Dies ist die eine Seite der Medaille. Wird die Sache von der anderen Seite aus betrachtet, wurde mit diesem Experiment aber auch gezeigt, dass die Homines Reciprocantes in der Lage sind, den Homines Oeconomici ihr Verhalten aufzuzwingen, nämlich, wenn ein verlässlicher Bestrafungsmechanismus für eigennütziges Verhalten Teil der Interaktionssituation ist. Bei der ursprünglichen Ausgestaltung des Ultimatumspiels mit nur einem potentiellen Annehmer ist genau das der Fall. Angenommen A wäre ein Homo Oeconomicus, müsste er B dennoch einen Betrag anbieten, der als fair empfunden wird, weil er davon ausgehen muss, dass B ein unfaires

[7] Die niedrigeren Angebote von A im Fall, dass mehr als ein potentieller Annehmer mitspielt, resultieren übrigens aus dem Verhalten der As, welche Homines Oeconomici sind. Diese erwarten das Verhalten der Bs und wissen daher, dass auch geringere Angebote ihrerseits eine hohe Wahrscheinlichkeit haben angenommen zu werden (Fischbacher, Fong und Fehr 2009: 534).

Angebot ablehnt und A somit leer ausgehen lässt. Auf eine detaillierte Argumentation dieses Sachverhaltes kann hier verzichtet werden, da sie umgekehrt zum gerade dargestellten Fall, leicht erschlossen werden kann. In Übereinstimmung mit Fehr, Fischbacher und Gächter (2002: 15) konnten Fischbacher, Fong und Fehr (2009) zeigen, dass die Existenz eines Bestrafungsmechanismus für eigennutzmaximierendes Verhalten ein wichtiger Parameter für das Ergebnis von Interaktionen ist.

In der Frage, wer die Interaktionssituation dominiert, ist somit weniger entscheidend, wer in der Mehrzahl ist, Homines Oeconomici oder Homines Reciprocantes, sondern vielmehr die konkrete Ausgestaltung der Interaktion selbst, zum Beispiel, ob es einen Bestrafungsmechanismus gibt oder nicht (explizit hierzu Camerer und Fehr 2006: 47). Schon wenige Homines Oeconomici können Interaktionen dominieren, wenn kein Bestrafungsmechanismus vorhanden ist, genauso wie wenige Homines Reciprocantes in der Lage sind, Interaktionen zu dominieren, wenn ein Bestrafungsmechanismus für eigennutzmaximierendes Verhalten zur Verfügung steht. In beiden Fällen kann es, wie erwähnt, schon ausreichend sein, wenn die Akteure davon ausgehen, dass zumindest ein Homo Oeconomicus oder ein Homo Reciprocans in die Interaktion involviert sein könnte, auch wenn dies faktisch gar nicht der Fall ist.

3. Implikationen für die Wirtschaftsethik

Bevor wir zeigen wollen, warum die Ergebnisse Fehrs die wirtschaftsethischen Kräfteverhältnisse weniger in Richtung Individualmoral, sondern vielmehr in Richtung Rahmenordnung verschieben, verdienen zwei Punkte Erwähnung. Der erste betrifft die Relevanz der Laborexperimente Fehrs für die Lebenswelt. Viele Interaktionssituationen außerhalb des Labors, erst Recht in den anonymen Massengesellschaften der heutigen Zeit, können analog zu Laborsituationen verstanden werden, in denen kein Bestrafungsmechanismus zur Verfügung steht. Dies ist der Fall, weil Massengesellschaften so viele verschiedene Möglichkeiten für Interaktionen bieten, dass es schwer ist, eigennutzmaximierende Akteure von kooperierenden zu unterscheiden; die Spreu vom Weizen zu trennen. Sich ausbeuterisch zu verhalten, kann in Massengesellschaften eine auch langfristig gewinnbringende Strategie sein, weil der Ausbeuter sich beim Ausgebeuteten einfach nicht mehr blicken lässt und letzterem damit keine Gelegenheit zur Bestrafung seines egoistischen Verhaltens gibt. Er profitiert davon, stets wieder genügend neue Möglichkeiten zur Interaktion mit anderen Interaktionspartnern zu haben, die er ebenfalls wieder ausbeutet. In den

Massengesellschaften unserer Zeit gilt eben nicht mehr die alte Weisheit, dass man sich im Leben immer zweimal trifft. Oder mit Martin Hollis: „in today's shifting societies of partial strangers, we can all be invisible often enough (1998: 32)".

Daraus wird ersichtlich – und dies ist der zweite Punkt, der Erwähnung verdient –, warum die Annahme, dass das Homo-Oeconomicus-Modell eine überzeugende Beschreibung tatsächlicher Menschen darstellt, so viel Überzeugungskraft entfalten konnte, sodass es nicht selten von einer konstruktivistischen Annahme zu einem anthropologischen Faktum hochstilisiert wurde. Die Ergebnisse von Interaktionssituationen in anonymen Massengesellschaften erwecken oftmals den Anschein, als wären in ihnen lediglich Homines Oeconomici am Werk. Stattdessen sind, aufgrund des Fehlens eines Bestrafungsmechanismus in diesen Situationen schon wenige Homines Oeconomici ausreichend, um die Situation zu dominieren. Sie bringen die anderen Interaktionsteilnehmer dazu, sich ebenfalls wie Homines Oeconomici zu verhalten, weil die zur Kooperation bereiten Teilnehmer wissen, dass sie die bedingungslosen Eigennutzmaximierer nicht bestrafen können und das Ausgebeutetwerden somit nur verhindern können, wenn sie sich selbst ausbeuterisch verhalten, bzw., wie in den oben dargestellten Experimenten, ausbeuterisches Verhalten anderer nicht bestrafen. In den Worten der Spieltheorie: Sie betreiben präventive Gegendefektion.

Nach diesen Vorbemerkungen wollen wir nun zunächst zeigen, dass Fehrs Experimente nicht als Beleg für die Auffassung der individualmoralischen Position herangezogen werden können, wonach gesellschaftliche Verbesserungen im Kielwasser moralischer Verbesserungen der Individuen schwimmen. Der direkteste Weg, diesen Nachweis zu führen, besteht darin, sich zu überlegen, ob eine Erhöhung des Anteils der moralischen Akteure unter allen Akteuren das Ergebnis der Interaktionssituation moralischer machen würde. Ein moralischeres Ergebnis der Interaktionssituation würde in Einklang mit weitverbreiteten moralischen Intuitionen darin bestehen, eine höhere Gleichverteilung der Geldeinheiten zwischen Spieler A und dem bzw. den Spieler(n) B herzustellen.[8] In diesem Sinn ist das Ergebnis des Spiels mit einem potentiellen Annehmer moralischer als das mit zwei potentiellen Annehmern, und letzteres wiederum moralischer als das mit fünf potentiellen Abnehmern. Bei den von Fehr unterschiedenen Akteurstypen ist der bedingungslose Altruist – auch hier folgen wir nicht unumstrittenen aber doch sehr weitverbreiteten moralischen Intuitionen – als moralischer anzusehen als der Homo Reciprocantes, und letzterer wiederum als moralischer als der Homo

[8] Sogar Robert Nozick, einer der heftigsten Kritiker des Egalitarismus, würde hier zustimmen, da dies ein typischer ‚Manna-vom-Himmel-Fall' ist, in welchen auch nach Nozicks Dafürhalten absolute Gleichheit ein entscheidendes Gerechtigkeitsprinzip ist (1974: 198).

Oeconomicus. Hätten die Verfechter der Individualmoral recht, müsste ein Steigen des Anteils an bedingungslosen Altruisten auf Kosten des Anteils an Homines Reciprocantes oder auf Kosten des Anteils an Homines Oeconomici sowie ein Steigen des Anteils an Homines Reciprocantes auf Kosten des Anteils an Homines Oeconomici ein moralischeres Ergebnis der Interaktionssituation mit sich bringen. Dies zieht drei zu untersuchende Fälle nach sich, wobei jeder dieser drei Fälle in zwei Typen unterteilt werden muss, je nachdem, ob ein Bestrafungsmechanismus vorhanden ist oder nicht. (Zur Vereinfachung nehmen wir an, dass A, der Anbieter der Geldeinheitenverteilung, ein Homo Oeconomicus ist, womit ausschließlich der/die potentielle(n) Annehmer den Unterschied in Bezug auf die Fairness des Ergebnisses der Interaktionssituation ausmacht/en.)

Fall 1_Homines Reciprocantes mehr, Homines Oeconomici weniger: Das Steigen von Homines Reciprocantes auf Kosten des Anteils an Homines Oeconomici (der Anteil an bedingungslosen Altruisten bleibt gleich) hätte ceteris paribus eindeutig positive Auswirkungen auf das Ergebnis der Interaktionssituation. Bei Vorhandensein eines starken Bestrafungsmechanismus, also in der Ausgangssituation des Ultimatumspiels mit nur einem potentiellen Annehmer des Angebots, würde eine derartige Erhöhung des Anteils an Akteurstypen eine höhere Gleichverteilung hervorbringen, weil A wüsste, bzw. mit der Zeit merken würde, dass sich seltener ein Akteur findet, der eine als unfair empfundene Verteilung annehmen wird. Wäre B ein Homo Oeconomicus, könnte A auch mit einem unfairen Angebot durchkommen, da B nicht bereit ist, sich die Bestrafung von As unkooperativem Verhalten etwas kosten zu lassen. B würde auch ein Angebot von 99 zu 1 GE annehmen, da er seinen Nutzen durch die eine GE ja erhöht, was seinen etwaigen Ärger über das unfaire Verhalten As aufwiegt. Wäre hingegen die Wahrscheinlichkeit erhöht, dass B ein Homo Reciprocans ist, müsste A fairere Angebote unterbreiten, um seinen Nutzen zu maximieren, da er fürchten muss, dass B ein als unfair empfundenes Angebot ablehnt, weil Homines Reciprocantes ja bereit sind, unfaires Verhalten zu bestrafen. Im Fall, in dem bei Vorhandensein eines starken Bestrafungsmechanismus der Anteil von Homines Reciprocantes auf Kosten des Anteils an Homines Oeconomici steigt – die Menschheit also moralischer geworden wäre –, ist die Annahme der Verfechter der Individualmoral bestätigt, wonach die Erhöhung der Moralität von Individuen die moralische Qualität der Ergebnisse von Interaktionssituationen mit sich bringt.

Im Fall derselben Verschiebung des Anteils an Akteuren und bei Abwesenheit eines starken Bestrafungsmechanismus, also bei der Ausprägung der Interaktionssituation, in der neben B

noch einer oder gar vier potentielle Annehmer anwesend sind, gilt dasselbe, wenn auch ein wenig abgeschwächt. Je höher der Anteil an Homines Reciprocantes auf Kosten des Anteils an Homines Oeconomici, desto höher die Wahrscheinlichkeit, dass bei Vorhandensein von zwei oder gar vier potentiellen Annehmern gar kein Homo Oeconomicus unter ihnen verweilt und ein unfaires Angebot As damit abgelehnt wird, was A zu einem faireren Angebot veranlassen wird. Freilich müssen hierzu auch die Bs wissen, dass die Wahrscheinlichkeit hoch ist, dass unter ihnen kein Homo Oeconomicus ist und jeder B muss wissen, dass auch die anderen Bs dies wissen. Auch hier also gilt, wenn auch durch zusätzlich einzuführende intersubjektive Wissensannahmen ein wenig abgeschwächt, der von den Verfechtern der Individualmoral prognostizierte Effekt.

Fall 2_Bedingungslose Altruisten mehr, Homines Oeconomici weniger: Der nächste zu betrachtende Fall ist der, in dem eine moralische Verbesserung der Menschen dadurch erreicht wird, dass einige Bs von Homines Oeconomici zu bedingungslosen Altruisten konvertieren. In Bezug auf das Ergebnis der Interaktionssituation würde sich nun aber paradoxerweise nichts ändern, sprich, es würde keine höhere Gleichverteilung der GE resultieren. Der Anbieter einer Verteilung A kommt mit unfairen Angeboten genauso gut durch, wie wenn kein einziger Homo Oeconomicus konvertiert wäre. Sowohl in der Ausprägung der Interaktionssituation mit starkem Bestrafungsmechanismus als auch in der mit schwachem Bestrafungsmechanismus werden unfaire Angebote As mit gleicher Wahrscheinlichkeit angenommen. Unterschiede werden sich lediglich im Motiv der Annehmer ergeben. Während die Homines Oeconomici ein unfaires Angebot, z.B. das Angebot einer 99 zu 1 Verteilung, annehmen, weil es sie immer noch ein wenig besser stellt, werden die bedingungslosen Altruisten ein derartiges Angebot annehmen, weil sie auch bei einem unfairen Angebot kooperieren wollen oder anders ausgedrückt, dem A nicht verderben wollen, dass er seine 99 GE erhält. Der Anbieter A würde diesen Unterschied im Motiv gar nicht bemerken, da er genauso viele Annahmen seiner unfairen Angebote erhält, wie vor der Konversion einiger Homines Oeconomici zu bedingungslosen Altruisten. Der von den Verfechtern der Individualmoral prognostizierte Effekt einer moralischen Verbesserung gesamtgesellschaftlicher Ergebnisse durch eine moralische Verbesserung der Individuen bleibt in diesem Fall aus, was unabhängig von der Existenz eines starken oder schwachen Bestrafungsmechanismus gilt, weil ein solcher ja weder von Homines Oeconomici noch von bedingungslosen Altruisten genutzt werden würde.

Fall 3_Bedingungslose Altruisten mehr, Homines Reciprocantes weniger: Schließlich steht noch der Fall aus, in dem sich einige Homines Reciprocantes zu bedingungslosen Altruisten

bekehren lassen. Auch dies wäre ja eine moralische Verbesserung der Individuen. Bei Bestehen eines starken Bestrafungsmechanismus (nur ein potentieller Annehmer B) führt dies dazu, dass A mit unfaireren Angeboten durchkommt, die Ungleichverteilung der GE also zunimmt. Während ein Homo Reciprocans ein als unfair empfundenes Angebot As ablehnt und den Homo Oeconomicus A damit dazu bringt, fairere Angebote zu unterbreiten, wird ein bedingungsloser Altruist dies nicht tun. Der bedingungslose Altruist wird jede, auch die 99 zu 1 Verteilung als die unfairste aller möglichen Verteilungen annehmen, weil er den Zugewinn des A aus altruistischen Motiven nicht verhindern will. Der bedingungslose Altruist ist im Gegensatz zum Homo Reciprocans nicht bereit, den ihm zur Verfügung stehenden Bestrafungsmechanismus zu nutzen. Der Anbieter A wird darauf reagieren, indem er immer unfairere Angebote unterbreitet, denn mit der Ersetzung von Homines Reciprocantes durch bedingungslose Altruisten steigt die Wahrscheinlichkeit der Annahme unfairer Angebote.

Es ist leicht zu sehen, dass sich, wie auch schon in den beiden vorherigen Fällen, das gleiche Resultat für die Situation mit zwei oder gar mit vier potentiellen Annehmern ergibt. Auch hier wird das Ansteigen der bedingunglosen Altruisten den zwar im Gegensatz zum Ausgangsfall schwächeren, aber dennoch vorhandenen Bestrafungsmechanismus abschwächen. In diesem Fall ergibt sich mithin das Gegenteil zur von den Verfechtern der Individualmoral prognostizierten Verbesserung der Gesellschaft durch Verbesserung der Individuen. Die moralischeren Individuen führen unmoralischere gesellschaftliche Ergebnisse herbei.

Der Test des der individualmoralischen Position zugrundeliegenden Anspruchs, wonach moralischere Individuen eine in den Ergebnissen ihrer Interaktionssituation moralischere Gesellschaft hervorbringen, ist geprüft an den Experimenten des Teams um Fehr ernüchternd. Nur in einem Fall, nämlich in dem Fall, in dem Homines Reciprocantes an die Stelle von Homines Oeconomici treten, führt eine Erhöhung der individuellen Moralität zu einer Erhöhung der moralischen Qualität des Ergebnisses der Interaktionssituation. Sobald der Anteil der bedingungslosen Altruisten als dem moralischsten der drei Interaktionstypen erhöht wird, bleibt der erhoffte Effekt einer Verbesserung der moralischen Qualität des Ergebnisses der Interaktionssituation aber entweder aus (der Fall, in dem aus Homines Oeoconomici bedingungslose Altruisten werden) oder verdreht sich gar in sein Gegenteil (der Fall, in dem Homines Reciprocantes bedingungslose Altruisten werden). Die Ergebnisse der Verhaltensökonomik entscheiden den Kampf zwischen den Verfechtern der Individualmoral und denjenigen der Rahmenordnung also keineswegs zugunsten der ersteren. Die Gleichung

geht nicht auf, wonach die von der Verhaltensökonomik gestreuten Zweifel an der Sinnhaftigkeit des Homo-Oeconomicus-Konzepts das Gewicht in Richtung der Verfechter der Individualmoral verschieben würden.

Vielmehr unterstreichen die Ergebnisse Fehrs die Annahme, dass Veränderungen in der Rahmenordnung den entscheidenden Einfluss auf die moralische Qualität der Ergebnisse von Interaktionssituationen ausüben. Je nach Rahmenbedingung dominieren entweder die Homines Reciprocantes die Interaktionssituation oder die Homines Oeconomici. Ist ein gut funktionierender Bestrafungsmechanismus für ausbeuterisches Verhalten vorhanden, zwingen die Homines Reciprocantes mit ihrer Nutzung dieses Bestrafungsmechanismus die Homines Oeconomici dazu, sich moralisch zu verhalten, ergo, fairere Angebote zu unterbreiten. Ist kein solcher Mechanismus vorhanden, bringen die Homines Oeconomici die Homines Reciprocantes dazu, auch unfaire Angebote anzunehmen, Angebote, die sie sonst bestrafen würden (siehe den Fall mit vier potentiellen Annehmern). Letzterer Fall wird von Karl Homann, dem Verfechter der Rahmenordnung, antizipiert, wenn er schreibt, dass der Homo Oeconomicus unter bestimmten Rahmenbedingungen das Ergebnis der Interaktionssituation dominiert, selbst „wenn es ihn empirisch gar nicht ‚gibt'" (1997: 20) – bzw., in Bezug auf Fehrs Experimente, selbst wenn er in der Unterzahl ist.[9]

Die Position, wonach der Rahmenordnung eine hohe Relevanz für das Ergebnis von Interaktionssituationen zukommt, wird bestätigt, insofern selbst kleine Modifikationen der Randbedingungen von Interaktionen große Auswirkungen auf die moralische Qualität des Ergebnisses von Interaktionssituationen nach sich ziehen können. Dies wird erreicht, ganz ohne auf eine Veränderung im relativen Anteil der drei verschiedenen Interaktionstypen angewiesen zu sein. Fehrs Modifikationen des Ultimatumspiels legen die Richtigkeit der Überzeugung nahe, Interaktionssituationen dürften nicht so eingerichtet werden, dass sie anfällig für Ausbeutung durch Homines Oeconomici sind.[10] Bei der Einrichtung von Interaktionssituationen muss daher Sorge dafür getragen werden, dass selbige nicht ausbeutbar durch unmoralisch agierende Akteure sind. Auch dies wird von Homann vorweggenommen, wenn er fordert: „Nur wenn institutionelle Arrangements homo-oeconomicus-resistent

[9] Diese Übereinstimmung mit der Verhaltensökonomik gesteht auch Panther dem Homannschen Ansatz zu (2005: 87).

[10] Alternativ könnte auch gefragt werden, ob Fehrs Ergebnisse nicht zeigen, dass der bedingungslose Altruist keineswegs der moralischste Akteur ist. Immerhin sorgen die altruistic Fools, wie man die bedingungslosen Altruisten in Anlehnung an Sens Redeweise von den Rational Fools zu nennen geneigt ist, dafür, dass die Ergebnisse von Interaktionssituationen moralisch unerwünscht sind. Diese alternative Betrachtungsweise würde hier aber zu weit führen und ist darüber hinaus für die vorgenommene Argumentation unproblematisch, da sie ohnehin eher die Verfechter der Rahmenordnung weiter stärken würde.

ausgestaltet werden können, sind sie in der Lage, die gewünschte Rolle zu spielen. Wie man nur TÜV-geprüfte Autos in den Verkehr lässt, so kann der Ökonom nur solche Regeln und Institutionen empfehlen, die den – gedanklichen – Homo-oeconomicus-Test bestanden haben. Andernfalls mutet er gerade den moralischen Akteuren die Ausbeutung durch die weniger moralischen Akteure zu“ (1997: 21).

Anstatt – wie auf den ersten Blick anzunehmen – die Verfechter der Individualmoral zu stärken, affirmieren die Experimente Fehrs in vielerlei Hinsicht die Verfechter der Rahmenordnung. Ohne angesichts der Vielzahl der Experimente in der Verhaltensökonomik auch nur annähernd den Anspruch vertreten zu können, den wirtschaftsethischen Streit zwischen Verfechtern der Individualmoral und denjenigen der Rahmenordnung entscheiden zu können, hat die vorliegende Arbeit u.E. gezeigt, dass die moralische Qualität der Ergebnisse von Interaktionssituationen mit Veränderungen in den Rahmenbedingungen erstaunlich verlässlich erreicht werden kann. Dies bedeutet im Umkehrschluss freilich nicht, dass Maßnahmen zur moralischen Verbesserung von Individuen irrelevant wären. Zu Recht könnten die Verfechter der Individualmoral – und zwar auch in Bezug auf das Ergebnis von Interaktionssituationen – reklamieren, dass es zumindest den Fall zu verhindern gilt, in dem sich alle Akteure wie Homines Oeconomici verhalten. Die hier vorgenommene Untersuchung legt aber nahe, dass die Wirtschaftsethik sich vor allem fragen sollte, welche Implikationen die Verhaltensökonomik in Bezug auf die Einrichtung wirtschaftlicher Rahmenbedingungen und die richtige Setzung von Anreizen mit sich bringt. In diesem Sinn würde die Wirtschaftsethik ihre Rolle darin sehen, die besten Ergebnisse der Wissenschaft ihrer Zeit für die Einrichtung moralischerer Ergebnisse von Interaktionssituationen zu instrumentalisieren und damit, im besten Fall, die Eintracht in Bezug auf das ‚Wie‘ der moralischen Erhöhung von Moral in der Wirtschaft erhöhen.

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Much Ado About Nothing?
Sustainability Disclosure in the Banking Industry *

DIANA FESTL-PELL AND KATRIN HUMMEL**

ABSTRACT

This paper examines the sustainability disclosure in the banking industry with respect to potential greenwashing. We build a theoretical framework to assess the sustainability disclosure along materiality criteria in the banking industry and apply this framework to the corporate sustainability reporting of two global systemically important banks. The results of our case study point toward the existence of greenwashing, mainly in the most material areas of the sustainability disclosure of our sample banks, but also highlight the shortcomings of existing disclosure guidelines to adequately account for material sector-specific sustainability issues.

Keywords: Greenwashing, Corporate Sustainability Disclosure, Banking Industry, Materiality

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1. Introduction

Over the last decades, reporting on corporate sustainability has evolved from focusing primarily on environmental issues to the triple bottom line approach of environmental, social and financial performance (see Elkington 1997). Corporate sustainability disclosure today is no longer only the domain of those firms that belong to environmentally sensitive industries but has become common practice for firms of all types of industries regardless of their ecological impact. Firms are expected to operate responsibly toward their environment and demonstrate their conformance with these expectations through non-financial disclosure. Previous research has shown that establishing *legitimacy* is a primary motive for a company's voluntary sustainability disclosure (see e.g. Cho et al. 2012; Cho/Patten 2007). Firms disclose information on non-financial topics to ensure that their actions are perceived as legitimate, i.e., in accordance with society's expectations on sustainable business conduct (see e.g. Suchman 1995). Since detailed and legally binding regulations on non-financial reporting are currently missing in most countries, companies are granted leeway in determining both quantity and quality of their sustainability reporting. Due to this leeway, companies may use sustainability disclosure rather as a tool for positive self-presentation than for the presentation of objective, comparable and comprehensible information on their true sustainability performance. Practitioners and academics term this disclosure style "greenwashing" and "bluewashing", respectively.

While there is a substantial amount of research in the area of corporate sustainability disclosure in general (for a recent literature review across industries see Fifka 2012; for studies particularly focused on the banking industry see Herzig/Moon 2013; Herzig et al. 2012; Scholtens 2009), research on the precise nature and determinants of greenwashing is relatively scarce. This paper fills this research gap by providing a comprehensive framework for the assessment of sustainability disclosure with respect to greenwashing utilizing an industry-specific materiality focus. We apply this framework to an in-depth analysis of the sustainability disclosure of two global systemically important banks. In addition, we perform a structured media search to identify third-party criticism of these two banks with respect to the issues covered by our framework and exemplarily link this criticism to the banks' sustainability disclosure.

There are basically two reasons why we focus on the banking industry. Firstly, in the aftermath of the financial crisis in 2007/2008, the banking industry faced significant increases in mandatory risk disclosure regulations (see Bischof/Daske 2013; Herz 2010). However,

research has mainly neglected the consequences of this regulation on corporate sustainability disclosure although information and communication on these risks are of substantial importance to all groups of stakeholders. Secondly, the assessment of materiality as a basic principle for the determination of both content and focus of a firm's corporate sustainability report is particularly important for (financial) service companies. Commonly applied sustainability disclosure guidelines, in particular the Global Reporting Initiative (GRI) sustainability reporting guidelines (GRI 2011a; 2011b), focus on environmental and social impacts of a company which are generally less material for (financial) service companies. Drawing on a framework for the materiality assessment of sustainability-related issues in the banking industry we assess the disclosed information with respect to its materiality to stakeholders. Our framework thereby distinguishes between three main disclosure areas: financial and economic system stability, sustainable business activities and sustainable workforce and infrastructure. For each area, we analyze the banks' sustainability disclosure against the background of materiality and regulatory guidelines which yields valuable insights into the existence and nature of greenwashing in banks' corporate sustainability reporting.

Although our findings point toward the existence of greenwashing mainly in the highly material areas of the sustainability disclosure of our sample banks, it is important to interpret these findings against the (self-)regulatory background in the banking industry. Notably, the most commonly used standards on corporate sustainability disclosure, the reporting guidelines published by the GRI, offer only limited guidance for the reporting of *material* sustainability-related issues in the banking industry. The GRI Financial Services Sector Supplements (FS-SS) refer to very specific product and service impacts and are thereby limited in their scope of reflecting a complete picture of sustainable business conducts of diversified banks (see GRI 2013c; GRI 2011b). The disclosure guidelines on market discipline (Pillar 3 of the Basel II accord) by the Basel Committee on Banking Supervision offer more detailed guidance with respect to risk disclosures which are material for the core business of globally operating banks. However, these regulatory guidelines mainly apply to banks' financial reports with investors as the major group of audience and clear legal boundaries. They may therefore not be sufficient with respect to both the broader scope as well as the longer timeframe targeted by sustainability reporting.

The paper is structured as follows. The next section presents the theoretical background of our study. Based on a brief review of related disclosure literature a framework for the materiality assessment of sustainability-related issues in the banking industry is presented. This framework

guides our case study on the sustainability disclosure of two global systemically important banks. The methodology, sample as well as results from this case study along with a discussion of our major findings are described in the third section. The final section concludes the paper.

2. Theoretical Background and Literature Review

2.1 Sustainability Disclosure and Greenwashing

There are primarily two theoretical concepts in the literature which explain the existence of sustainability reporting. Following voluntary disclosure theory, it is argued that firms disclose information on their corporate sustainability performance to increase their market value (see Verrecchia 1983). Socio-political theories, in particular the legitimacy theory, on the other hand, posit that firms engage in sustainability reporting to ensure that their actions are perceived as legitimate, i.e., in accordance with stakeholders' expectations on sustainable business conduct (see e.g. Suchman 1995; Dowling/Pfeffer 1975; Davis 1973). Both theories offer explanations of why companies' sustainability disclosure differs in both quantity and quality. For instance, Hummel and Schlick (2015) show that particularly poor sustainability performers provide low-quality sustainability disclosure to disguise their true performance and to maintain a sustainable image at the same time. Building on previous research (see Lyon/Maxwell 2011: 9) we extend the applicability of the concept of greenwashing beyond its original focus on environmental aspects and define greenwashing as *a company's selective disclosure on sustainability issues without full reporting of material sustainability issues to overstate its true sustainability performance*. Thus, our definition is linked to the concept of materiality and does not merely distinguish the pure type of information (negative vs. positive).

Due to the huge body of research on sustainability disclosure, our literature review is focused on two primary areas of interest: studies on sustainability disclosure in the banking industry and studies on greenwashing. The first area of research is characterized by predominantly descriptive investigations on banks' sustainability disclosure regarding environmental and social issues (see e.g. Khan et al. 2011; Evangelinos et al. 2009; Scholtens 2009). None of these studies address the banks' role and disclosure with respect to the stability of the overall financial system, despite its emphasis by both stakeholders and financial regulators. To the best of our knowledge, there are currently only two studies that examine banks' sustainability disclosure against the background of the financial crisis. Herzig et al. (2012) investigate the sustainability reporting of ten German banks for the reporting year 2007/2008. The authors

show that reporting on bank-specific sustainability issues is relatively poor and conclude that "a structural reform with the aim of a 'strongly embedded' sustainability" (p. 204) is needed. Although the authors discuss the importance of sustainability reporting for the re-building of trust and confidence in the financial sector, they do not consider the overall financial system stability for their analysis. This aspect is more explicitly addressed in Herzig's and Moon's (2013) discourse analysis of newspaper articles on the financial crisis. The study reveals four distinct discourses on corporate social responsibility in the financial sector and the economic crisis, yet the authors do not match the external perspective of media coverage with the banks' own disclosure. Taken together, while previous studies provide valuable insights into sustainability disclosure in the banking industry, none of these studies systematically address the issue of greenwashing against the background of the materiality of banks' own sustainability disclosure.

The second area of research on the nature and determinants of greenwashing includes normative approaches (see Bowen/Aragon-Correa 2014; Laufer 2003) as well as empirical studies (see Mahoney et al. 2013; Kim/Lyon 2011; Ramus/Montiel 2005).[1] Empirical research yields ambiguous findings with respect to the existence of greenwashing which may primarily stem from difficulties in the measurement of greenwashing. For instance, Mahoney et al. (2013) concentrate on the relationship between corporate sustainability performance and the decision to issue a stand-alone sustainability report as an indicator for the existence of either greenwashing (indicated by a negative relationship) or signaling (indicated by a positive relationship). They report evidence for signaling. On the other hand, Kim and Lyon (2011) compare reported reductions in greenhouse gas (GHG) emissions to actual GHG emissions for participants of a voluntary GHG registry. They interpret differences between reported and actual emissions as evidence for greenwashing activities. Analytical studies (see e.g. Lyon/Maxwell 2011: 23) recommend extending the empirical setting to additional drivers of disclosure behavior, such as enforcement pressure. This approach of studying the explicit effect of regulatory enforcement has lately gained ground in the empirical literature of bank disclosure regulation (see Bischof et al. 2015). Disclosure regulation of banks encompasses the specificity that banks have to prepare their reporting according to two different regulators with non-identical reporting goals. Goldstein and Sapra (2014) report a trade-off between providing

[1] In addition, Boiral (2013) investigates the existence of "simulacra", a concept that is closely related to, yet not identical with, greenwashing.

decision-useful information for the capital market and reassuring a broad set of stakeholders on the long-term stability of the financial system.

While a broad set of stakeholders is typically addressed by corporate sustainability disclosure, research has so far neglected the role of both voluntary and mandatory disclosure regulations with respect to corporate sustainability disclosure and greenwashing. In addition, research in the field of greenwashing is primarily concentrated on firms that belong to environmentally sensitive industries, although corporate sustainability disclosure has become common practice for firms of all types of industries.[2] In particular, the banking industry yields an interesting setting for an in-depth investigation of the existence of greenwashing against the background of mandatory and voluntary disclosure regulations on material issues. A framework for the assessment of sustainability disclosure in the banking industry is presented in the next section.

2.2 Framework for the Assessment of Sustainability Disclosure in the Banking Industry

Due to their role as financial intermediaries, banks are central for the functioning of a modern economy. Through their capacity to make loans to the private, public and corporate sector, banks are able to fund the growth of the real economy. In this role, banks serve a very diverse group of stakeholders who need the credit provided by the banks or are indirectly linked with the borrowers of the banks' credit. Banks themselves mainly borrow the funds they need for the credit creation business. This distinguishes banks from most other business sectors as these are mainly funded by shareholder's equity rather than debt. Bank debtors include private depositors, corporations, governments or other financial institutions with surplus funds. Banks are therefore special for having a very large group of stakeholders with very diverse information needs. Despite their central role in the economy, there is – to the best of our knowledge – no widely accepted materiality assessment of sustainability-related issues for the banking industry.[3] According to the GRI (2013a: 7; 2013b: 11) material aspects "reflect the

[2] In 2013, 93 percent of the largest 250 companies worldwide published stand-alone or integrated sustainability reports (see KPMG 2013: 22).

[3] The Sustainability Accounting Standards Board (SASB) has recently published industry-specific reporting guidelines for sustainability disclosure (see SASB 2015). However, these reporting standards define materiality according to the Securities and Exchange Commission's definition of materiality focusing on investor decision-useful information. This approach therefore differs from the broader and more long-term oriented materiality concept applied in this paper.

organization's significant economic, environmental and social impacts; or substantively influence the assessments and decisions of stakeholders".[4]

Figure 1 provides a framework for assessing global banks' sustainability disclosure that builds on the GRI (2013a) definition of materiality.[5] We identify three major areas of sustainability disclosure: financial and economic system stability, sustainable business activities, and sustainable workforce and infrastructure. The first area particularly relates to significant economic impacts, the second area comprises economic, environmental and social impacts, and the third area includes primarily environmental and social impacts. Along these three areas the materiality of topics decreases from a high materiality of financial and economic system stability, to a moderate materiality of sustainable business activities to a low materiality of sustainable workforce and infrastructure. Within each area we identify four major disclosure categories that guide our assessment of sustainability disclosure in the third section of the paper.[6] These disclosure categories are closely linked to commonly used disclosure guidelines thereby ensuring the existence of quantitative indicators and measures for each category.

Insert Figure 1 about here

The first area of the materiality framework – financial and economic system stability – refers to the measures taken and reported by a bank with respect to fostering the stability of the overall financial system. As banks play a major role in facilitating the credit demand and supply of the real economy, the stability of the financial system has a direct impact on the stability of the total economy. This holds true especially for global systemically important banks which are particularly prone to market risk through their investment bank's trading activities (see Freixas/Rochet 2008). We argue that the sustainability disclosure on financial and economic system stability is highly material. The externality potential of this area is high due to the high monetary as well as fiscal costs which have to be borne by the society in case of a breakdown

[4] Under the newest version of GRI sustainability reporting guidelines (G4), which were launched in May 2013, organizations have to report on the process and outcome of the assessment of material aspects and boundaries (see GRI 2013a: G4-17 to G4-23).

[5] With respect to disclosure guidelines we concentrate on the version G3.1 of the GRI sustainability reporting guidelines (see GRI 2011a; 2011b) because only few companies have already adopted the latest version G4 in their 2013 sustainability reporting and there are no substantial differences in the performance indicators with respect to the disclosure categories addressed in our framework.

[6] While we consider the four categories in each area as particularly material and comprehensive with regard to the topics covered in the sustainability reports, there are many additional topics which could be addressed within each area.

of the financial system. Such costs include, but are not limited to, high interest rates on mortgages and corporate loans as well as an overall low availability of credit to the economy. As a basis for the proper functioning of the whole economy, financial and economic system stability concerns all potential stakeholders of a bank. Besides the stakeholders directly involved in the business conduct of a bank, there are additional groups of stakeholders such as taxpayers and the society at large. Due to their core business to create and trade credit with money received by depositors, banks possess a multiplication function which is only limited by regulatory imposed reserves which have to be held against the deposits received (see Freixas/Rochet 2008). We argue that the disclosed information in this area is very complex since it requires the understanding of the banks' core business processes, their interconnectedness with the macro-economy as well as the prevailing national and international legislation the bank has to adhere to. There are no mandatory or voluntary disclosure guidelines specifically targeted to address financial and economic system stability issues in sustainability reports. The regulatory and accounting rules which guide the mandated disclosure of the financial report of a bank provide the most suitable quantitative measures for assessing the sustainability reporting. In addition to these guidelines, selected economic performance indicators of the GRI sustainability reporting guidelines cover parts of the disclosures needed in this area (see GRI 2011a). Based on timing and scope of the disclosure our framework distinguishes between four disclosure categories. These categories comprise early adherence to newly imposed regulation, the disclosure of a long-term focus and a broad stakeholder focus as well as the assessment of systemic risk.

Sustainable business activities refer to the sustainability of a bank's core business activities. Compared to financial and economic system stability, the materiality of topics within this area is lower, yet still moderate. Depending on the business model of a bank, this area relates to business activities such as corporate and retail banking, wealth and asset management, and investment banking. The externality potential of this area is moderate as it comprises mainly external benefits, yet costs to society are limited. Such benefits arise for instance from providing access to financial services for small businesses in underdeveloped regions (micro-finance). Similar to financial and economic system stability, this area also concerns the multiplication function of a bank and thus affects a high number of stakeholders, such as shareholders, investors, customers, NGOs and local communities. The complexity of disclosed information is moderate, i.e., a basic understanding of the banking business is needed to be able to reach a reflected opinion upon reading the disclosed information. With respect to

disclosure categories we distinguish between information on sustainable investment, micro-finance activities, engagement in problematic sectors and business activities, such as conducting business with the defense and armaments industry and agricultural commodity trading, and product responsibility and customer satisfaction. Disclosure guidelines in this area are voluntary and mainly include the GRI performance indicators on product responsibility (see GRI 2011a), the GRI FS-SS (see GRI 2011b) and the Equator Principles (see EP 2013). The GRI FS-SS consist of 16 financial services sector-specific disclosures and performance indicators that account for sustainability-related issues with respect to the product and service portfolio of banks. Besides, they include adjustments on G3.1/G4 guidelines content and performance indicators. The Equator Principles (latest version: EP3) are a baseline and framework for the management of environmental and social risks which apply to project financing by financial institutions (see EP 2013). Signatories commit to implement the Equator Principles in their internal policies and procedures and report annually on completed transactions.

The third area – sustainable workforce and infrastructure – relates to a bank's performance with respect to employees and the ecology. The externality potential on society is low since it is limited to external costs that stem from banks' ecological impacts. Compared to production industries, banks' ecological impacts are low as they consume relatively few scarce resources. With respect to the employee sub-area we argue that even in case of layoffs the externality potential is relatively low due to the high qualification of the workforce, which is a critical success factor in the job search. Therefore, we assess a higher materiality for the employee sub-area compared to the ecological sub-area. Overall, only few groups of stakeholders, in particular employees and NGOs, are concerned. Both sub-areas do not involve any multiplier effect as they are not related to the core financial intermediary business of banks. With respect to the disclosed information we assess a low complexity because the information can be easily understood by economic laymen. In each sub-area we consider four core disclosure categories that are included in the GRI performance indicators on labor practices and on the environment (see GRI 2011a) and (partly) in the United Nations Global Compact.

3. Case Study on Sustainability Disclosure in the Banking Industry

3.1 Sample and Methodology

Our sample consists of two global systemically important banks, namely Credit Suisse (CS) situated in Switzerland and Deutsche Bank (DB) situated in Germany. These two banks are typical representatives of the 30 global systemically important banks (see FSB 2014) and exemplary both for their involvement in the global financial crisis and for their detailed sustainability reporting. We assess and record the bank's sustainability disclosure for the reporting year 2013 with respect to the disclosure categories of our materiality framework. In addition, for each bank we perform a Factiva search of major German and Swiss newspapers for the same year.[7] In total, the results list includes 418 news entries for DB and 268 news entries for CS.[8] We manually assess the content of each news entry and exclude news that do not directly relate to the respective banks. The remaining news is linked to one of the three areas of our framework or to the categories "general financial information and company strategy" or "information regarding the Kirch scandal"[9]. Overall, the distribution of news across the three areas of our framework is consistent with the materiality assessment provided in the framework. In particular, 43 (DB) and 55 percent (CS) of the news concern the first area (financial/economic system stability), 20 percent (DB) and 15 percent (CS), respectively, concern the second area (sustainable business activities), and 1 percent (DB) and 4 percent (CS) concern the third area (sustainable workforce and infrastructure). With respect to the other categories, 22 percent (DB) and 26 percent (CS) relate to "general financial information and company strategy" and 14 percent of the news on DB concern the "Kirch scandal". Based on the results of this media search we identify material cases of third-party criticism which target both sample banks and assess the banks' disclosure with respect to this criticism.

The sustainability disclosure taken into account includes the corporate sustainability report as well as references to additional resources within the report. The baseline for a comprehensive assessment within each (sub-) area is defined as the disclosure of both quantitative and non-quantitative (verbal) information. Quantitative information is particularly necessary to facilitate comparability across different companies. Such quantitative information needs to be

[7] Factiva is a proprietary international news database that covers worldwide news from 200 countries in 28 languages. German newspapers include Berliner Zeitung, Die Welt, Die Zeit, Der Tagesspiegel, Frankfurter Allgemeine Zeitung, Frankfurter Rundschau, der Spiegel, Stuttgarter Zeitung and Süddeutsche Zeitung. Swiss newspapers include Aargauer Zeitung, Basler Zeitung, Die Weltwoche, Neue Zürcher Zeitung, NZZ am Sonntag, Sonntagszeitung, Tages-Anzeiger and wirtschaft.ch.

[8] An overview of the evaluated news reports as well as a detailed description of the news concerning the main area of financial/ economic system stability of the two sample banks can be found in the Appendix. A detailed description of all evaluated news reports is available as an Excel-Appendix on request.

[9] The "Kirch scandal" accused Deutsche Bank's senior management to deliberately foster the collapse of the Kirch media empire. It has been settled in 2014 when DB announced a legal settlement payment of more than €775 million to Kirch's heirs.

accompanied by verbal explanations and discussions. The necessity of this verbal information increases with the materiality of the disclosure areas and thus with the complexity of the information. We argue that the sustainability disclosure is free from greenwashing if quantitative and non-quantitative (verbal) information are tailored to the specific reporting needs of each disclosure category with the intent to provide a true and full picture of its sustainability performance.

3.2 Results

3.2.1 Overview

Both banks' sustainability reports follow the GRI sustainability reporting guidelines G3.1. Their disclosure levels are classified as "A+" thereby indicating comprehensive reporting according to the GRI guidelines (application level A) and external assurance of the sustainability report (indicated by "+"). The reports differ in their overall length (CS: 66 pages; DB: 106 pages), yet the shorter CS sustainability report includes references to websites that provide additional in-depth information on certain topics. While the reports' structures do not adhere to our distinction of the three major disclosure areas, both reports contain information with respect to these disclosure areas. DB's report is organized into an introduction, containing the report's contents, a foreword and some general information on the bank's divisional structure, strategy and values, a chapter "Our Controls", a chapter "Our Business", a chapter "Our Commitment" as well as supplementary information. The CS report consists of an introduction, including the report's contents, a foreword and some general information on corporate responsibility, a chapter "Responsibility in Banking", a chapter "Responsibility in Society", a chapter "Responsibility as an Employer", a chapter "Responsibility for the Environment" as well as supplementary information. Besides information that falls into one of our three disclosure areas, both banks additionally provide comprehensive information on corporate citizenship and sponsorship. Remarkably, none of the reports contain a section that explicitly deals with the banks' responsibility with respect to the stability of the financial and economic system. Thus, information with respect to the financial and economic system stability is spread over the whole report. However, the CS report contains information on the process and outcome of a materiality assessment. While the materiality assessment of sustainability-related issues is predominantly in accordance with our framework, in particular with regard to

highest materiality being assigned to financial system stability, the content and structure of the reports do not adequately reflect this assessment.

3.2.2 Financial and Economic System Stability

Figure 2 summarizes the sample banks' disclosures in the area of financial and economic system stability according to the four disclosure categories of our framework. As many disclosures which are material for the assessment of the financial and economic system stability of the two banks are potentially reported in their annual reports rather than their sustainability reports, the assessment of this area of our framework is based on an integrated view of the information provided in both these reports.

Insert Figure 2 about here

The focus of the two banks with respect to the first disclosure category, early adherence to rules, differs widely. In their annual reports, both banks refer to the Basel framework's supplementary requirements for systemically relevant banks which they have to adhere to (CS AR 2013: 5; DB AR 2013: 23). CS's annual report generally includes very detailed descriptions of proposed as well as newly implemented regulation and supervision, including the Basel III framework and the comparably stricter Swiss "Too Big to Fail" legislation. The legislation includes capital, liquidity, leverage and large exposure requirements, and rules for emergency plans designed to maintain systemically relevant functions in the event of threatened insolvency. (CS AR 2013: 24) DB's annual report stresses its commitment of early compliance with the Basel III capital framework. In addition, in its sustainability report, CS provides quantitative as well as verbal information on its early transition to the new Basel III guidelines and the thereby applicable, national capital regulation six years before they will actually become effective (see e.g. CS 2013: 4f., 11f., 59). DB on the other hand does not report any quantitative information on its compliance with proposed new banking regulation in the sustainability report, but concentrates the discussion on internal measures taken to monitor potential legal and reputation risks as well as to adapt its business strategy to their new code of conduct (see e.g. DB 2013: 4ff., 12, 19).

Both sample banks also emphasize different topics and vary in the way of reporting this information in the second disclosure category, long-term focus. Standard financial and risk reporting is by construction backwards oriented, either describing various risks which had

occurred in the past or qualitatively assessing potential future risks which may occur within the existing bank's business model (see e.g. CS AR 2013: 34-42; DB AR 2013: 29-37). The market, liquidity and operational risk reports in the annual reports of the two sample banks cover all required risk metrics as well as scenario analyses and stress testing based on historical as well as hypothetical assumptions. Nevertheless, all analyses are based on the assumption of the banks' current business model and taking the banks' client behavior as given. (see e.g. CS AR 2013: 35; DB AR 2013: 190) Hence, both banks tend to be silent about detailed, future-oriented objectives regarding the mitigation of the bank's long-term risk contribution in a case-study or stress-test setting. CS discloses that Standard & Poor's lowered CS's long-term counterparty credit rating and warns of potential detrimental effects of further downgrades as these could negatively affect their funding costs and business transaction possibilities. (CS AR 2013: 35) On the other hand, CS reports quantitatively on its strategic actions to reduce regulatory costs and mitigate costs arising from systemic risk in its sustainability report. However, quantitative as well as verbal information is limited to the alignment of CS's business model to the changing regulatory environment: "As part of the bank's growth strategy, we aim to achieve a balanced distribution of capital between our two divisions" (CS 2013: 4). DB discusses new performance indicators for measuring DB's long-term value creation to clients, but does not explain how value is created for shareholders "by putting long-term success over short-term gain" (DB 2013: 12).

In line with the target group of annual reports, risk governance and management descriptions of the two banks are mainly focusing on shareholders' interest, rather than taking a broad stakeholder focus, e.g. "The primary objectives of risk management are to protect our financial strength and reputation, while ensuring that capital is well deployed to support business activities and grow shareholder value." (CS AR 2013: 115) Furthermore, all ratios presented in the annual reports which assess the systemic relevance of the two sample banks are limited to the institution view and are based on legally required measures (see e.g. CS AR 2013: 102-105; DB AR 2013: 204). In its sustainability report, CS presents general facts about its role as a financial intermediary providing credit to their clients, whereas DB provides detailed verbal information of how they implement a client-centric business focus. DB also expounds its new client centricity and the change in corporate culture in the qualitative introduction of the annual report (see e.g. "Cultural change – laying the foundations for our future success" and "Creating Value for Our Stakeholders"). DB also presents illustrative examples on its product assessment process (see DB 2013.: 24) as well as its customer protection programs (see ibid.: 42).

However, without any quantitative information, the reader cannot assess the materiality or the efficiency of these measures.

The sample banks' information provided with respect to the forth disclosure category (assessment of systemic risk) is again very heterogeneous. Both CS's as well as DB's annual reports describe market volatility risk and its potential adverse effects for their trading and investment activities in great detail. CS discloses the potential impact from market fluctuations and volatility on the fair value of their trading positions as well as adverse effects on their total net revenues and profitability. (CS AR 2013: 18; 35) At the same time, DB makes clear that too low market volatility is disadvantageous for their trading revenues, especially in foreign exchange trading, due to margin compression (DB AR 2013: 42) However, both banks' statements of objectives to manage market risk are very limited. CS states that they continue to "reduce [their] balance sheet and accelerate the implementation of [their] client-focused, capital-efficient strategy in 2013" (CS AR 2013: 35). DB is confident that factors such as higher market volatility and a stricter regulatory environment will "favour large managers […] to exploit scale and efficiency to provide clients with sophisticated investment solutions." (DB AR 2013: 52) In its sustainability report, DB reports quantitatively about its employee training programs covering a wide range of risk awareness, financial crime and compliance topics (see DB 2013: 17–22). As in the other three disclosure categories, CS emphasizes its risk management approaches in line with applicable and proposed laws and regulations. Whereas CS discusses the management and ongoing monitoring approach of its credit risk exposure, DB focuses merely on non-financial risks such as reputation risk as it suggests that "traditional financial risks (are) intrinsic to our business" (ibid.: 25) and therefore monitored by law. Same as in their annual reports, both banks do not provide any explanation about their control measures to manage market risk, even though both CS (2013: 29) and DB (2013: 25) acknowledge their active role in managing this risk measure.

Furthermore, the discrepancy between disclosure and materiality becomes even more apparent when analyzing the banks' reporting with respect to third-party criticism. The major cases of third-party criticism in the area of financial and economic system stability of the two banks are highlighting outright violations of national legislation and international standards. Scandals, such as the manipulation of benchmark interest rates and foreign exchange rates (see e.g. Tages-Anzeiger 2013)[10] or the misrepresentation of the performance of securities (see e.g. Die

[10] In March 2014, international media (Bloomberg: 2014; Reuters 2014; WSJ 2014) publish that Credit Suisse as well as Deutsche Bank are among 16 of the world's largest banks sued by the U.S. Federal Deposit Insurance Corporation for their alleged role in manipulating the London interbank offered rate from 2007 to 2011. In case

Welt 2013) have led to financial and economic instability as they have enriched the colluding banks to the detriment of the global economy. Both sample banks selectively disclose their positive achievements with regards to fraud and corruption awareness trainings and highlight their participation in industry standards which should prevent future misconducts (see CS 2013: 6, 14, 57; DB 2013: 18ff.). However, both banks remain silent about the reasons why their membership in voluntary self-regulation initiatives against fraud and corruption is needed to prevent them not only from unsustainable, but also from presumably unlawful business conduct. Corporate scandals are disclosed only when legal litigation is already ongoing. There is no ex-ante disclosure or assessment of systemic risk which may arise from financial innovations and interbank relationships.

Misconduct, such as fraud and corruption, is treated as "legacy" (CS 2013: 13) which has to be resolved, but is not reported as material risk for the future: "Furthermore, the bank is actively involved in the ongoing development of industry standards that are designed to safeguard the integrity of the financial system. One example is Credit Suisse's participation in the Wolfsberg Group (see page 57) – reflecting our commitment to implementing its anti-money laundering and anti-bribery standards while also staying abreast of important current developments." (ibid.: 14). Deutsche Bank as well reports to "strengthen [its] control framework and confront legacy issues, including significant legal matters such as the European Commission's probe into Interbank Offered Rates." (DB: Foreword). However, any explanation on the measures applied in the enhanced control framework as well as its ability to mitigate systemic misconduct risks are missing.

3.2.3 Sustainable Business Activities

Figure 3 presents an overview of the banks' disclosures with respect to sustainable business activities. For the first disclosure category, sustainable investments, both sample banks provide some quantitative and verbal information. However, quantitative information for this disclosure category is very limited and precise definitions are missing. Moreover, only DB additionally provides relative values indicating the importance of sustainable investments relative to the bank's total investments. Without such information it is difficult for the reader

of Credit Suisse, this news about their conviction for manipulating the London interbank offered rate proved to be a deficiency report. Negative media news can create material reputational risk for the involved companies at the time of their issuance, even though some of them may prove to be overstated or even outright wrong at a later stage.

to assess statements such as: “At Credit Suisse, we offer a broad range of products and services that give investors access to sustainable investment opportunities” (ibid.: 22). Similar findings are obtained for the second disclosure category. Both banks provide predominantly cumulative and no yearly information on their micro-finance activities. Only DB provides this information for a reporting period of more than one year, thereby allowing for an assessment of the recent development in this area. Despite this lack of comparable quantitative information, both banks emphasize their pioneering role in microfinance: “Credit Suisse has been a leader in microfinance since 2002 (…)” (ibid.: 23). “We were the first global bank to launch an investment fund supporting the microfinance sector in 1997, and since then we have pioneered standards to promote ethical behavior in the industry and protect its clients” (DB 2013: 54). Disclosure in the third disclosure category of this area – problematic sectors and business activities – is very heterogeneous. While CS is a signatory of the Equator Principles and thus reports pre-defined quantitative information on project finance transactions in accordance with the Equator Principles, DB’s disclosure primarily concentrates on the management of reputational, environmental and social risks. In addition, both banks provide verbal information on problematic sectors and business activities. Such information includes statements[11] as well as policies, guidelines (see CS 2013: 21 with reference to website) and key positions (see DB 2013: 33). Many guidelines are detailing the increased scrutiny and in-depth due diligence processes in the business continuance case. CS exemplifies its policy regarding hydraulic fracturing (see CS 2013: 18). DB illustrates its risk review process for two exemplary environmental and social sensitive projects, mono-cultural farming and coal mining. Explaining both its critics’ standpoints and its internal review process as well as actions taken forward, DB provides a transparent learning process towards a more sustainable business conduct (see DB 2013: 31). At the same time, both banks are not very explicit on their process of how they decide and go about discontinuing such sensitive businesses. Remarkably, DB explicitly reports having ceased to adhere to self-imposed restrictions with regards to agricultural commodities trading beyond regulatory boundaries in 2013 (see ibid.: 33). With respect to the fourth disclosure category, both banks present only general verbal information on product responsibility, such as: “We regularly review the suitability and appropriateness of the advice we offer clients as part of our efforts to inspire them with confidence.” (CS 2013: 14) and “We do not offer incomprehensible product bundles or products that do not include

[11] Such as: “We are not involved in proprietary trading in agricultural commodities” (CS 2013: 21) and “[…] we support increased transparency and appropriate regulation” (DB 2013: 33).

clear benefits for the client" (DB 2013: 44). With respect to customer satisfaction, CS presents only very limited verbal information as part of their stakeholder dialogue while DB discloses and discusses findings from a client satisfaction survey for 2011–2013.

Insert Figure 3 about here

Taken together, the sustainability disclosure of both banks in the area of sustainable business activities is predominantly general and critical reflections are provided only with respect to some distinct issues. Therefore, it is difficult to assess from an outsider's perspective to what extent third-party criticism is related to certain business decisions such as the temporary (and later revoked) ban of soft commodity speculation at DB in the year 2013 (see ibid.: 33). Similar to the sample banks' disclosures, media news in the area of sustainable business activities is characterized by controversial, non-conclusive viewpoints. Some news articles highlight the advantages of commodity speculation, such as increased liquidity and decreased price volatility which might even reduce risks (see e.g. Neue Zürcher Zeitung 2013a). Other news articles criticize speculation on agricultural commodities for their potential to contribute to food shortages and price increases in third-world countries (see e.g. Frankfurter Allgemeine Zeitung 2012). By the time of publication of CS's and DB's sustainability reporting, academics and financial regulators have not agreed on any common rules regarding those problematic business activities. Both banks therefore pronounce their achievements in unanimously sustainable business activities such as sustainable investments and micro-finance. In contrast, both CS and DB are less explicit about their sustainability objectives in those controversial business areas that are mainly discussed by the media.

3.2.4 Sustainable Workforce and Infrastructure

An overview of the banks' disclosures in the employee-related sub-area of sustainable workforce and infrastructure is provided in Figure 4. Overall, the disclosures in each category are very similar between the two sample banks. With respect to the first disclosure category CS provides information on both voluntary and non-voluntary turnovers for 2012 and 2013 by region while DB provides information on voluntary turnover for 2011–2013. In both cases, definitions of the indicators are missing and there is no verbal discussion of the quantitative information. In addition, both banks provide rough quantitative information on employee commitment along with a brief discussion. However, for DB information is only provided for

the years 2011 and 2012. Quantitative information in the second disclosure category is very limited and only provided for the country of domicile. In both cases, there is no additional discussion of the quantitative information. With respect to the third disclosure category, the information provided by CS is in accordance with the GRI reporting guidelines, yet the disclosure covers only the current reporting year 2013 and thus a chronological comparison of the information is not possible. The information provided by DB on this indicator does not correspond to the GRI performance indicator. Both banks provide additional verbal information as well as statements on training. However, a discussion, which is clearly related to the disclosed quantitative information, is only present for the fourth disclosure category, gender equality. Both banks report the information on LA13 in accordance with the GRI guidelines, yet none of them report quantitative information on the ratio of remuneration of women to men (LA14).

Results from the Factiva search reveal the controversial fact that there are no female members on DB's Management Board in 2013 (see e.g. Die Zeit 2013). However, the sustainability disclosure of the bank itself does not address this critical issue. On the other hand, CS appears to respond to media criticism about cost savings programs which involve significant employee layoffs (see e.g. Neue Zürcher Zeitung 2013b). In particular, CS highlights its endeavor to minimize the impact of cost reduction measures on employees through internal transfers (see CS 2013: 47). However, the bank does not disclose the reasons why the involuntary turnover rates still remain relatively high (see ibid.: 44).

Insert Figure 4 about here

With respect to disclosure in the ecological sub-area, both banks provide comprehensive and detailed quantitative information for a reporting period of three years (2011–2013) in each disclosure category. The quantitative information is in accordance with the GRI performance indicators and is presented both on an absolute as well as per employee basis which facilitates comparability across companies of different sizes. In both cases, the quantitative information is accompanied by additional verbal information with a strong focus on climate change and GHG emissions. Both banks are GHG-neutral, i.e., offset remaining GHG emissions through the purchase of emissions reduction certificates. While the environmental section of the DB sustainability report prominently starts with "neutralizing our carbon footprint" (DB 2013: 82),

CS presents this information only on the second page of the environmental section of the report and not in the headline (see CS 2013: 51).

The results from media search reflect the low materiality of the direct ecological impact. The results list contains not one single news post related to the ecological disclosure categories energy, water, greenhouse gas emissions and waste. This finding stands in contrast to the detailed reporting of both banks on ecological aspects of their infrastructure. Third-party criticism on environmental issues exclusively relates to banks' indirect impact through investments and financing of ecologically questionable projects and business sectors which belong to the area of "sustainable business activities". For instance, DB has been criticized for funding South-East Asian rubber planting corporations which do not consider any ecological aspects in their production lines and are therefore responsible for environmental disasters (see e.g. Der Spiegel 2013). Indirect impact on the environment through the banks' core business activities is mentioned only briefly by CS (see ibid.: 50) and not at all by DB. Similar to their reporting strategy in the area of sustainable business activities, both CS and DB pronounce their commitments to voluntary initiatives such as the "Roundtable on Sustainable Palm Oil (RSPO)" (see ibid.: 57) or achievements in sustainability rankings like the "Climate Performance Leadership Index" (see DB 2013: 82) while failed controls in their ecological supply chain are not disclosed at all.

3.3 Discussion of Major Findings

Our findings on the banks' reporting in the first area of financial and economic system stability are ambiguous. Despite the high materiality of this area for sustainability reporting we find only limited disclosure of both quantitative and qualitative information. Overall, neither CS nor DB report comprehensively in this most material area of sustainability which indicates the existence of greenwashing. Instead, both banks highlight their endeavors for "compliance" or "cooperation towards regulatory reforms" as material objectives. This result becomes even more apparent when linking third-party criticism to the reporting of both banks. While the news search reveals the involvement of both banks in major corporate scandals, such as the manipulation of benchmark interest rates in the case of DB and interest rate derivative collusion and tax evasion in the case of CS, the banks' own reporting on these scandals is very brief and remains rather boilerplate.

It is important to interpret these findings against the regulatory background of mandatory as well as voluntary disclosure guidelines. The GRI sustainability guidelines along with its sector

supplements for financial service companies offer very limited assistance with respect to the integration of financial and economic system stability into banks' sustainability reporting. The mandatory disclosures in this area which are required by bank regulators as well as international accounting standards for banks' financial reports are not compulsory for sustainability reporting and explicitly focus on the information needs of financial investors. Due to this lack of disclosure guidelines targeted at sustainability reporting, the two sample banks choose very different reporting approaches in the area of financial and economic system stability. The CS sustainability disclosure in this area is focused on the compliance with mandatory rules, while the DB sustainability report predominantly concentrates on internal procedures to enhance systemic stability. As a result of missing homogeneous quantitative measures, a comparison of the two banks along the pre-set disclosure categories is difficult. In addition, both reports demonstrate the importance of verbal information with respect to a bank's reporting on financial and economic system stability due to the high complexity of the disclosed information. CS highlights its early adopter's role of newly proposed regulation without explaining its own business misconduct which may have contributed to this new rule set. The reporting of DB, on the other hand, pronounces its focus on putting "the client" at the center of its business model without providing a clear definition of who this client actually is and whether this client would potentially have the market power to actively affect the bank's business model. Both banks mainly concentrate their sustainability reporting on non-financial risk factors, such as measures to mitigate reputational risk, while completely leaving out more complex information on material market risk issues which arise from the banks' involvement with global investment banking activities. Taken together, these findings do not suggest an adequate disclosure in the highly material area of sustainability as none of the banks provide a true and full picture of its sustainability performance.

Similarly, our findings point toward the existence of greenwashing activities by both banks with respect to sustainable business activities. Although this disclosure area covers the banks' core business, disclosure with respect to sustainable business activities is predominantly qualitative in nature, while quantitative reporting on key performance indicators is limited. This discrepancy partly reflects greenwashing activities, but also limited guidance by the GRI sustainability reporting sector supplements. Even if there is quantitative information, information is often presented for a single reporting year only, thereby hampering an assessment of the progress. Moreover, definitions on the reported figures are often imprecise or missing, which hinders comparisons across companies. While both banks explicitly address

and discuss some distinct critical issues, mainly litigation cases, the results from our news search reveal further criticism the banks remain silent about.

We find the most detailed and comprehensive information in the area of sustainable workforce and infrastructure which is remarkable considering the relatively low materiality of this disclosure area. This low materiality is also consistent with the results from our news search that reveal only a limited number of articles on employee-related issues and no articles at all on ecological issues. Overall, the banks' ecological disclosures comprise quantitative information in line with the GRI performance indicators while disclosures with respect to the workforce are limited and do not fulfill the scope recommended by the GRI performance indicators. Given the higher materiality impact of employee-related information, this result is at odds with the materiality assessment of the two sub-areas. Although we concentrate on core GRI performance indicators in each sub-area, quantitative information in the employee sub-area is limited in scope, imprecise or missing which hampers the comparability of the disclosed information. Moreover, explanations and discussions on the quantitative information are limited and third-party criticism is only partly addressed by the banks. Taken together, these discrepancies between actual reporting and disclosure requirements in the employee sub-area point toward some greenwashing activities by our sample banks.

4. Conclusions

This paper presented the results of an in-depth analysis of the sustainability disclosure of two global systemically important banks. By this, we were able to detect potential greenwashing, i.e., a company's selective disclosure on sustainability issues without full reporting of material sustainability issues to overstate its true sustainability performance. Drawing on a framework for the assessment of sustainability disclosure along materiality criteria in the banking industry, we distinguished three major disclosure areas: financial and economic system stability, sustainable business activities, and sustainable workforce and infrastructure. Based on the externality potential on society, the group of stakeholders involved and the multiplication function of banks we concluded that the materiality of sustainability disclosure is highest in the financial and economic system stability area, moderate in the area of sustainable business activities and low in the area of sustainable workforce and infrastructure. For each disclosure area we assessed the banks' sustainability disclosure along four disclosure categories by taking into account mandatory and voluntary disclosure guidelines. Each disclosure category thereby comprised both quantitative and qualitative (verbal) information. While quantitative

information is particularly necessary for an objective and comparable assessment of a bank's sustainability activities in each area, we argued that the necessity of related qualitative information, i.e., explanation and discussion of the quantitative information, increases with the materiality of each area and thus with the complexity of the disclosed information. Hence, the complexity of information is highest with respect to the financial and economic system stability since it requires a deeper understanding of the banks' interconnectedness with the macro-economy, moderate with respect to sustainable business activities and lowest with respect to sustainable workforce and infrastructure. In addition, we conducted a structured news search to capture third-party criticism on the two sample banks in the reporting year 2013. The distribution of articles among the three areas of our framework is consistent with the materiality assessment of each area. Based on the results from this news search we exemplarily identified third-party criticism in each area of sustainability and investigated the sustainability disclosure with respect to these critical issues.

We found evidence for greenwashing in each disclosure area which also has to be interpreted against the background of existing mandatory and voluntary disclosure guidelines. Despite the high materiality of the first disclosure area, none of the reports contain a comprehensive reporting on financial and economic system stability. Moreover, both banks only briefly comment on their role in major corporate scandals, such as the manipulation of benchmark interest rates in case of DB and client tax evasion help in case of CS. This discrepancy between disclosure and materiality indicates greenwashing, but it also reflects the current state of voluntary sustainability reporting guidelines. In particular, we found that the GRI sustainability reporting guidelines offer no guidance on the integration of financial and economic system stability into banks' sustainability reporting. In addition, our analysis indicates that mandatory disclosure rules under banking regulation and financial reporting regulation may not be helpful for determining the content of sustainability reporting since they do not address all groups of stakeholders. Our analysis also revealed that reporting of quantitative information in the second disclosure area is very limited, yet mainly accompanied by further discussions and explanations. Banks respond more openly toward third-party criticism, yet the disclosure is rather general in nature. We interpreted this finding as a further indication for greenwashing by our sample banks, but also accounted for the absence of a broad set of GRI performance indicators on banks' sustainable business activities. Only with respect to the third disclosure area, sustainable workforce and infrastructure, we found detailed and comprehensive information which is in contrast to the low materiality of this disclosure area. Hence, this

disclosure style which overstates an immaterial disclosure area points toward greenwashing but also reflects the banks' adherence to the GRI sustainability reporting guidelines. Overall, our findings highlight the fact that these voluntary guidelines do not account for the sustainability disclosure specificities needed for the banking industry, despite the existence of sector-specific reporting adjustments. Our critical evaluation of banks' disclosure in this area is also supported by the banks' limited responsiveness with respect to third-party criticism, such as turnover or gender equality issues.

From a regulatory perspective, our findings therefore suggest that the integration of financial and sustainability reporting as recommended by the International Integrated Reporting Council may especially help mitigate greenwashing endeavors of banks and foster banks' transparent self-reflection on financial stability and sustainability. Besides this integrated reporting form, a focus on material sector-specific sustainability topics as targeted by the new G4 sustainability reporting guidelines may avoid boilerplate disclosure statements. By aligning sustainability ratings and indices with these material sustainability guidelines, it may become easier to screen companies which highlight material areas in their sustainability disclosure and thereby go beyond pure compliance with mandatory and voluntary reporting rules.

While an in-depth assessment of banks' sustainability disclosure is particularly appropriate for studying the existence and nature of greenwashing, some caveats apply to this case study approach. Our findings may be limited to service companies with generally lower material impact with respect to employees- and ecology-related issues. Moreover, our framework for the assessment of sustainability disclosure in the banking industry is particularly useful for global systemically important banks. We have shown that the sustainability reporting guidelines are especially detailed in subject areas with low materiality for these type of banks. Further studies may utilize the framework of our study and investigate the research question for a larger sample or time period. Moreover, a comparison between the sustainability disclosure in the banking sector and other financial service providers across different countries might enable researchers to explicitly assess the costs and benefits of mandatory and voluntary disclosure guidelines on the quality of sustainability disclosure. The efficiency of voluntary, industry-specific sustainability networks with regards to a high-quality sustainability disclosure as well as enforcement capability in cases of business misconducts may thereby provide an interesting venue for further research. Generally, a better understanding of the drivers behind sustainability reporting of financial service companies is needed to be able to assess the applicability of voluntary disclosure theory and legitimacy theory for this business

sector. This, ultimately, enables an efficient combat of greenwashing activities and implementation of a true and full reporting on companies' sustainability performance.

Figure 1: Framework for the assessment of sustainability disclosure along materiality criteria in the banking industry

	Financial and Economic System Stability	**Sustainable Business Activities**	**Sustainable Workforce and Infrastructure**
Materiality	high materiality: ▪ high externality potential on society ▪ all groups of stakeholders are concerned ▪ multiplication function	moderate materiality: ▪ moderate externality potential on society ▪ many groups of stakeholders are concerned ▪ multiplication function	low materiality: ▪ low externality potential on society ▪ few groups of stakeholders are concerned ▪ limited multiplication function
Disclosure categories	high complexity: ▪ early adherence to rules ▪ long-term focus ▪ broad stakeholder focus ▪ assessment of systemic risk	moderate complexity: ▪ sustainable investment ▪ micro-finance ▪ problematic sectors and business activities ▪ product responsibility and customer satisfaction	low complexity: employees: ▪ turnover and satisfaction ▪ health and safety ▪ training ▪ gender equality ecological: ▪ energy ▪ water ▪ greenhouse gas emissions ▪ waste
Disclosure guidelines	mandatory (for financial report): ▪ Basel accords ▪ Accounting rules voluntary: ▪ GRI sustainability reporting guidelines	voluntary: ▪ GRI sustainability reporting guidelines ▪ GRI Financial Services Sector Supplements ▪ Equator Principles	voluntary: ▪ GRI sustainability reporting guidelines ▪ United Nations Global Compact

Figure 2: Overview of disclosures in the area of financial and economic system stability by disclosure category and sample bank

	CS	DB
Early adherence to rules	▪ quantitative information on early compliance with capital requirements under new Basel III framework and Swiss regulations for 2013 ▪ limited discussion of measures taken to adapt business model besides adherence to regulatory requirements ▪ definitions according to Basel Accord ▪ general verbal information on adoption of new (self-)regulation ▪ very limited verbal information on litigation cases due to former non-compliance	▪ no quantitative information on early compliance with capital requirements under new Basel III framework ▪ some discussion of measures taken to adapt business model (e.g. examples of embedding values and beliefs) ▪ definitions according to internal Code of Conduct ▪ some verbal information on adoption of voluntary risk controls ▪ very limited verbal information on litigation cases due to former non-compliance
Long-term focus	▪ some quantitative information on strategic actions to reduce costs and potential damages due to systemic risk ▪ no quantitative information on strategic actions to use systemic stability for positive value creation ▪ verbal information on alignment of business model to changing regulatory environment ▪ very limited verbal information on strategic growth opportunities	▪ no quantitative information on strategic actions to reduce costs and potential damages due to systemic risk ▪ some discussion of new key performance indicators for measuring long-term performance for clients ▪ verbal information on alignment of business model to new long-term strategy ▪ limited verbal information on strategic growth opportunities
Broad stakeholder focus	▪ general verbal information on main business focus of credit supply to clients ▪ brief discussion of engagement in stakeholder dialogue ▪ detailed information on negative consequences of tight regulation ▪ very limited verbal information on active business alignment for broad stakeholder benefit	▪ detailed verbal information and explanation of client-centric business focus ▪ brief discussion of engagement in stakeholder dialogue ▪ very limited information on non-financial factors for value creation ▪ detailed examples on product assessment process and customer protection

Assessment of systemic risk	▪ detailed verbal information of risk management in compliance with mandatory regulation ▪ discussion of monitoring of credit risk exposure ▪ brief verbal information on employee risk management training and assessment ▪ no explanation of control measures to manage market risk	▪ quantitative information on employee risk and compliance training ▪ no discussion of monitoring of credit risk exposure ▪ detailed verbal information on employee risk management training and assessment ▪ no explanation of control measures to manage market risk

Figure 3: Overview of disclosures in the area of sustainable business activities by disclosure category and sample bank

	CS	DB
Sustainable investment (FS7, FS8, FS11)*	▪ quantitative information on volume of "assets under management with high social and environmental benefits" for 2012 and 2013 ▪ rough definition is provided ▪ no discussion of quantitative information ▪ additional verbal information	▪ quantitative information on "ESG assets under management" by active management, passive and alternative investments for 2011–2013 ▪ quantitative information on proportion of "ESG assets under management" relative to total assets under management for 2013 ▪ rough definition is provided ▪ discussion of quantitative information ▪ additional verbal information
Micro-finance (FS13)*	▪ quantitative information on volume of "assets under management in the area of microfinance" for 2013 • quantitative information on "local employees trained", "people with access to improved financial services" and "electronic transactions completed" for 2013 ▪ definitions and estimations not provided ▪ brief discussion of quantitative information ▪ additional verbal information	▪ quantitative information on "estimated cumulative financing to micro-borrowers since 1997" for 2011–2013 ▪ quantitative information on "estimated cumulative number of microloans financed since 1997" for 2011–2013 ▪ quantitative information on volume of "assets under management in the area of microfinance" for 2013 ▪ definitions and estimations not provided ▪ brief discussion of quantitative information ▪ additional verbal information
Problematic sectors and business activities (FS1, FS2, FS3, FS9)*	▪ quantitative information on number and volume of project finance transactions to be reported according to the Equator Principles (by risk category, sector, region etc.) for 2012 and 2013 ▪ definitions according to the Equator Principles ▪ brief discussion of problematic sectors and business activities ▪ detailed information on sector policies and guidelines provided on webpage	▪ quantitative information on "transactions escalated due to reputational risks" for 2011–2013 ▪ quantitative information on "transactions assessed within ES Risk Framework" for 2011–2013 ▪ definitions are partly provided ▪ discussion of selected problematic sectors ▪ key positions on problematic sectors and business activities

Product responsibility (PR3, PR4, FS15)* and customer satisfaction (PR5)*	▪ general verbal information on product responsibility ▪ very limited verbal information on customer satisfaction	▪ general verbal information on product responsibility ▪ quantitative information on "client loyalty index" for 2011–2013 ▪ rough definition provided ▪ discussion of quantitative information ▪ additional verbal information

* GRI sustainability reporting guidelines performance indicators in parentheses (see GRI 2011a; 2011b).

Figure 4: Overview of disclosures in the sub-area of employees by disclosure category and sample bank

	CS	DB
Turnover (LA2)* and satisfaction	▪ quantitative information on voluntary and non-voluntary turnover rates for 2012 and 2013 by region ▪ definition not provided ▪ no discussion of quantitative information ▪ quantitative information on employee commitment for 2013 only; brief general discussion	▪ quantitative information on voluntary turnover rates for 2011–2013 ▪ definition not provided ▪ no discussion of quantitative information ▪ quantitative information on employee commitment for 2011 and 2012 only; brief general discussion
Health and safety (LA7)*	▪ quantitative information on absenteeism for 2011–2013, only provided on webpage, only for Switzerland ▪ no discussion of quantitative information	▪ quantitative information on lost working days for 2011–2013, only provided for Germany ▪ no discussion of quantitative information
Training (LA10)*	▪ quantitative information on average hours of training per year per employee for 2013 by employee category ▪ discussion of quantitative information ▪ additional verbal information on training	▪ quantitative information on total training expenses for 2011–2013 ▪ no discussion of quantitative information ▪ brief verbal statements on training
Gender equality (LA13, LA14)*	▪ quantitative information on proportion of female employees by category for 2013 ▪ discussion of quantitative information ▪ additional verbal information ▪ no quantitative information on LA14 (ratio of remuneration of women to men) is provided	▪ quantitative information on proportion of female employees by category for 2011–2013 ▪ discussion of quantitative information ▪ additional verbal information ▪ no quantitative information on LA14 (ratio of remuneration of women to men) is provided

* GRI sustainability reporting guidelines performance indicators in parentheses (see GRI 2011a).

APPENDIX: News Reports

	CS	DB
Financial / economic system stability	89 news (55%)	131 news (43%)
Sustainable business activities	24 news (15%)	61 news (20%)
Sustainable workforce and infrastructure	7 news (4%)	2 news (1%)
General financial information and company strategy	42 news (26%)	68 news (22%)
Kirch scandal	0 news (0%)	43 news (14%)
Subtotal	**162 news**	**305 news**

Table 1: Overview of news related to sustainability assessment by disclosure category and sample bank (source: Factiva)

	CS	DB
Personnel matters	10 news (4%)	55 news (13%)
Relationships with other companies	52 news (19%)	42 news (10%)
Real Estate issues	7 news (3%)	0 news (0%)
Other non-sustainability related news	37 news (14%)	15 news (4%)
Subtotal	**106 news**	**112 news**
Total	**268 news**	**417 news**

Table 2: Overview of other news unrelated to sustainability assessment by disclosure category and sample bank (source: Factiva)

CS: Financial/ economic system stability	News Title	News Source
Anti-competitive behavior	• Neue Schadenersatzklagen gegen CS und UBS wegen Liborskandal	• TA, 2 November 2013
	• Die Amerikaner wollen noch mehr Geld von den Grossbanken	• TA, 2 November 2013
	• Schweizer Banken halten sich bedeckt	• TA, 8 August 2013
	• Nach dem Libor bahnt sich ein neuer Skandal um manipulierte Zinsen an	• TA, 8 August 2013
	• Wie «fest» ist der Zins einer Festhypothek?	• TA, 5 August 2013
	• Der Gebührentrick	• TA, 18 Juli 2013
	• Wirtschaft	• NZZ am Sonntag, 13 Januar 2013

	• New Jersey verklagt Credit Suisse wegen Hypothekargeschäften	• NZZ, 19 Dezember 2013
	• Immobilienexperten erwarten höheren Kapitalpuffer für BankenTitel (max. 2-zeilig)	• TA, 10 Dezember 2013
	• Europas Banken setzen auf Coco-Bonds; Zur Stärkung des Eigenkapitals placieren Banken immer mehr Pflichtwandelanleihen	• NZZ, 6 Dezember 2013
	• Bonds als Sorgenkinder der Pensionskassen; Die Chancen und Risiken neuer Anlageklassen – Höhere Kosten drohen	• NZZ, 28 November 2013
	• Wie sich UBS und Credit Suisse für die Zukunft rüsten; Die Grossbanken stellen sich neu auf. Sie dürften dabei Kapital einsparen.	• NZZ am Sonntag, 24 November 2013
	• Wirtschaft	• NZZ am Sonntag, 24 November 2013
	• CS konkretisiert den Notfallplan ; Regulatorisch induzierte Verselbständigung des Schweizer Geschäfts	• NZZ, 23 November 2013
	• «Eine ‹neue› Credit Suisse ist erpressbar wie jede andere Bank»	• TA, 22 November 2013
	• Neue Struktur CS teilt Konzern auf	• TA, 22 November 2013
Systemic risk contribution	• Die Bank soll effizienter werden	• TA, 22 November 2013
	• CS rüstet sich für den Ernstfall; Schweizer Geschäft wird ausgelagert	• NZZ, 22 November 2013
	• Späte Einsicht der Grossbanken; Die neuen Regeln für Grossbanken führen zu einer Renationalisierung des Geschäfts. Im Fall des Bankwesens...	• NZZ, 22 November 2013
	• Auch die Credit Suisse prüft eine Abspaltung	• TA, 21 November 2013
	• Mehr Sicherheit für die Bankkunden; Die Systemrelevanz der Zürcher Kantonalbank wird von den politischen Parteien durchwegs positiv beurteilt	• NZZ, 12 November 2013
	• Wachsende Zweifel an der Krisenfestigkeit der grossen Schweizer Banken; Ausweitung des Blickfelds auf stark im Hypothekargeschäft engagierte...	• NZZ, 9 November 2013
	• Weiterer Verkauf der Credit Suisse	• NZZ, 8 November 2013
	• UBS und Credit Suisse mit starken Kursverlusten; Ängste um eine weitere Verschärfung der Kapitalanforderungen	• NZZ, 5 November 2013
	• UBS und CS mit herben Verlusten	
	• Notfall-Pläne der CS und UBS	• NZZ, 5 November 2013

• Die Finma gibt allen Beteiligten Rätsel auf	• Sonntagszeitung, 3 November 2013
• Finma will Transparenz und Verhaltensregeln; Schweizer Vermögensverwalter kämpfen mit Flut an drohenden neuen Vorschriften	• NZZ am Sonntag, 3 November 2013 • NZZ, 2 November 2013
• Paukenschlag für UBS ; Verfügung der Finma überrascht den Markt	
• Ein enttäuschendes Ergebnis und zwei Bad Banks	• NZZ, 30 Oktober 2013
• In der Regulierungswelle	• TA, 25 Oktober 2013
• Die Credit Suisse verabschiedet sich von der globalen Bank	• Die Weltwoche, 3 Oktober 2013
• Die Aufspaltung der Grossbanken ist schon fast wieder vom Tisch	• TA, 24 September 2013
• Zu hartes deutsches Pflaster; Credit Suisse prüft Teilverkauf des Private Banking	• NZZ, 20 September 2013
• Die Tür für eine staatliche Bankenrettung bleibt offen	• NZZ, 17 September 2013 • Sonntagszeitung, 15 September 2013
• Credit Suisse placiert Coco-Bond	• NZZ, 24 August 2013
• Rasch weg mit den Altlasten; Die Grossbanken sind gezwungen, die Vergangenheit möglichst schnell zu bereinigen	• NZZ, 31 Juli 2013
• Europas Banken als Sorgenkinder; UBS und CS stehen gut da	• NZZ, 26 Juli 2013
• Anpassung an das neue Umfeld; Die Credit Suisse versucht, die Geschäftsrisiken zu reduzieren	• NZZ, 26 Juli 2013
• Europas Banken als Sorgenkinder; Im Vergleich mit vielen Wettbewerbern in der Euro-Zone stehen UBS und CS gut da	• NZZ, 26 Juli 2013
• Bankaktien unter Verkaufsdruck; Rückstufung des Ratings der Credit Suisse – Höhere Kapitalanforderungen in den USA	• NZZ, 4 Juli 2013
• Joachim Oechslin neuer Risiko-Chef der Credit Suisse; Know-how im Versicherungsgewerbe und alte Bande zur Bank	• NZZ, 2 Juli 2013
• Die Grossbanken und des Kaisers neue Kleider; Die Credit Suisse und die UBS können sich nicht mehr hinter ihren vergleichsweise hohen...	• NZZ, 21 Juni 2013
• Anstrengende neue Bankenwelt; UBS und Credit Suisse sind operativ gut ins neue Jahr gestartet. Der Umbau ihrer Geschäftsmodelle greift...	• NZZ, 2 Mai 2013
• CS kauft Kredite belgischer Bad Bank	• TA, 30 April 2013
• Warum die CS im Vorteil ist	• NZZ, 29 April 2013 • NZZ, 27 April 2013

	• Warum die Credit Suisse im Vorteil ist; Vorangetriebene Anpassung an die neuen Rahmenbedingungen	• NZZ, 1 März 2013
	• Credit Suisse passt Bonus-Modell an; Berücksichtigung von «Basel III»	• NZZ, 9 Februar 2013
	• Credit Suisse auf Kurs; Komfortable Kapitalausstattung	• NZZ, 8 Februar 2013
	• Alles wird besser, nichts wird gut; Die UBS und die Credit Suisse tun sich schwer mit der Bewältigung der Finanzkrise. Die bisher erzielten Fortschritte sind eher bescheiden. Von Ermes Gallarotti	• NZZ, 8 Februar 2013
	• Schwer verdaulicher Eigenkapitalquoten-Salat; Vielfalt von Werten erschwert Vergleich der Schweizer Grossbanken Credit Suisse und UBS	• NZZ am Sonntag, 13 Januar 2013
	• Verkauf von Immobilien, Firmen, ETF-Geschäft	

Legal & tax issues	• Royal Park verklagt die Credit Suisse	• NZZ, 28 September 2013
	• Hypomarkt als Hauptsorge der Nationalbank	• TA, 21 Juni 2013
	• CS blitzt vor Bundesgericht ab	• TA, 11 Januar 2013
	• Bund ermittelt gegen Credit Suisse wegen Spionage	• TA, 10 Januar 2013
	• CS darf Namen nicht nennen	• TA, 19 Dezember 2013
	• So sortiert Washington die Banken	• NZZ am Sonntag, 1 Dezember 2013
	• SP fordert 1:15 für Post, SBB und Swisscom	• TA, 26 November 2013
	• Steuerstreit: Einigung verzögert sich weiter	• Sonntagszeitung 6 Oktober 2013, 308 Wörter,
	• Die Jagd auf Datendiebe	• TA, 23 August 2013
	• Erste Leaver-Listen wurden dem US-Justizministerium übermittelt	• Sonntagszeitung 11 August 2013 (Deutsch)
	• Wie die US-Behörden die Banken kategorisieren	• NZZ am Sonntag, 11 August 2013
	• Erste Leaver-Liste ist verschickt; Bewegung im Steuerstreit: Die erste im Visier der US-Justiz stehende Bank hat ihre Abschleicher-Liste...	• NZZ am Sonntag, 11 August 2013
	• Improvisation total im US-Steuerstreit; Der Bundesrat hat den Banken erste Bewilligungen zur Lieferung von «Abschleicher»-Listen an die USA...	• NZZ, 27 Juli 2013
	• CS: Viel Arbeit mit den Abschleichern	• TA, 26 Juli 2013, 188 Wörter, (Deutsch)
	• Ein Lastwagen voller Daten	• TA, 26 Juli 2013, 633 Wörter, (Deutsch)
	• Nach hundert Jahren am Ende; Rufmord-Kampagnen, Datenklau, Druckversuche: Das rigide Schweizer Bankgeheimnis ist schon seit dem Ersten...	• NZZ am Sonntag, 14 Juli 2013
	• CS-Kunden-Namen an die USA; Amerikanische Gruppenanfragen sind prinzipiell zulässig	• NZZ, 6 Juli 2013
	• Die guten Verbindungen der Credit Suisse in den Ständerat	• TA, 19 Juni 2013
	• Banken im Gegenwind ; Börsenagenda Schweiz von David Strohm	• NZZ am Sonntag, 16 Juni 2013
	• Auch CS hat Problem mit Frankreich	• TA, 10 Juni 2013
	• Credit Suisse Während über den automatischen Datenaustausch heftig diskutiert wi	• TA, 5 Juni 2013
	• Bankdaten werden längst getauscht	
	• CS: Daten an USA geliefert	• TA, 5 Juni 2013
	• Neue Ermittlungen gegen die CS	• Sonntagszeitung 26 Mai 2013
		• TA, 17 April

	• Der deutsche Druck auf Schweizer Banken hält an	2013
	• Deutschland kauft erneut Bankdaten-CD; Razzien bei Kunden	• TA, 17 April 2013
	• Deutsche Behörden machen weiter Jagd auf Steuersünder; Razzien aufgrund einer neuen Bankdaten-CD aus der Schweiz	• NZZ, 17 April 2013
	• UBS taucht oft auf in Offshore-Leaks-Datenbank	• NZZ, 17 April 2013
	• Mit prallen Geldkoffern nach Andorra – und zur Credit Suisse	• Sonntagszeitung 14 April 2013
	• Bankkunden in der Pflicht; Schweizer Banken wollen von deutschen Kunden einen Beweis der Steuerehrlichkeit	• TA, 10 April 2013
	• Hintergrund	• NZZ, 10 April 2013
	• Panama-Bezug CS-Chef Urs Rohner war früher im Steuerparadies	• NZZ am Sonntag, 7 April 2013, 19 Wörter, (Deutsch)
	• Die nächste Bank am Pranger	• TA, 6 April 2013
	• «Banker sollen keine Angst haben müssen»	• Sonntagszeitung 10 März 2013
	• CS blitzt vor US-Gericht ab	• TA, 6 Februar 2013
	• Steuersünder sollen sich selber anzeigen	• Sonntagszeitung 27 Januar 2013
	• CS liefert USA weitere Daten	• TA, 26 Januar 2013
		• Sonntagszeitung 13 Januar 2013

Table 3: Overview of news concerning financial/ economic system stability of CS (source: Factiva)

DB: Financial/ economic system stability	News Title	News Source
Anti-competitive behavior	• „Unverhältnismäßig"; Deutsche Bank muss entlassene Händler wieder einstellen	• SZ, 12 September 2013
	• Zu Unrecht gekündigt	• Berliner Zeitung, 12 September 2013
	• Rüge für Deutsche Bank in Libor-Affäre; Finanzaufsicht Bafin moniert mangelhafte Kontrolle	• SZ, 13 August 2013
	• Rüge für Deutsche Bank ; Bafin-Bericht zur Libor-Manipulation	• FR, 13 August 2013
	• Finanzen Kompakt	• Die Welt, 13 August 2013
	• Neuer Verdacht gegen deutsche Banken	• SZ, 6 August 2013
	• Klage gegen Deutsche Bank	• FR, 19 Juli 2013
	• Bank der Baustellen // Von Libor bis Steueroasen: Die Deutsche Bank steht unter Dauerverdacht. Für juristische Risiken hat sie Milliarden zurückgestellt	• Der Tagesspiegel, 6 April 2013
	• Frohe Ostern für Libor-Betrüger; Eine Richterin in New York weist Schadensersatz-Klagen gegen die Deutsche Bank und andere Institute ab, die den Zinssatz manipuliert haben sollen	• SZ, 2 April 2013
	• Gericht weist Klage gegen Banken ab	• Die Welt, 2 April 2013
	• Riskante Zinswetten	• Stuttgarter Zeitung, 6 März 2013
	• Monte dei Paschi; Geldhaus verklagt Deutsche Bank	• Stuttgarter Zeitung, 2 März 2013
	• DEUTSCHE BANK - Schon wieder Zwietracht	• Der Spiegel, 25 Februar 2013

	• Weg mit den Altlasten; Kurz vor Jahresende einigt sich die Deutsche Bank mit den US-Behörden im Streit um Hypotheken. Die Frankfurter zahlen 1,4 Milliarden Euro.	• Süddeutsche Zeitung, 21 Dezember 2013
	• Deutsche Bank muss in den USA zahlen // Vergleich um Rechtsstreit um dubiose Hypothekenkredite kostet 1,4 Milliarden Euro	• Der Tagesspiegel, 21 Dezember 2013
	• Deutsche Bank einigt sich mit US-Behörde	• Stuttgarter Zeitung, 21 Dezember 2013
	• Deutsche Bank schließt ihren teuersten Vergleich	• Die Welt, 21 Dezember 2013
	• Monte dei Paschi; Deutsche Bank legt Rechtsstreit bei	• Stuttgarter Zeitung, 20 Dezember 2013
	• Finanzskandale; Deutsche Bank beruft Kontrolleur	• Stuttgarter Zeitung, 10 Dezember 2013
	• Ein Mann räumt auf; Die Deutsche Bank installiert einen Risikobeauftragten	• Süddeutsche Zeitung, 10 Dezember 2013
	• Menschen & Märkte	• Die Welt, 10 Dezember 2013
	• Die Macht der Mega-Banken	• Der Spiegel, 9 Dezember 2013
Systemic risk contribution	• Deutsche Bank in Japan unter Verdacht	• Süddeutsche Zeitung, 6 Dezember 2013
	• Noch mehr Ärger; Festnahme in Japan: Die Deutsche Bank kommt nicht zur Ruhe	• Süddeutsche Zeitung, 6 Dezember 2013
	• Ein lohnender Abstieg; Deutsche Bank stellt inzwischen geringere Gefahr für die Weltwirtschaft dar	• Frankfurter Rundschau, 13 November 2013
	• FINANZEN; Deutsche Bank stabiler	• Süddeutsche Zeitung, 12 November 2013
	• Späte Abrechnung	• DIE ZEIT, 24 Oktober 2013
	• Bankenaufsicht; EU-Parlament stimmt zu	• Die Welt, 13 September 2013
	• DEUTSCHE BANK	• Der Tagesspiegel, 5 September 2013
	• Anshu Jain verteidigt Groesse der Deutschen Bank // "Die Krise ist noch nicht überwunden"	• Der Tagesspiegel, 5 September 2013 • Die Welt, 5 September 2013
	• Sparkassen attackieren die Deutsche Bank	• Süddeutsche Zeitung, 22 August 2013
	• FINANZEN; Deutsche Bank lässt warten	• Süddeutsche Zeitung, 23 Juli 2013

• Deutsche Bank macht sich klein; Das Geldhaus will seine Bilanz um ein Fünftel kürzen – Hintergrund sind Vorgaben der Bankenaufseher.	• Berliner Zeitung, 23 Juli 2013
• Deutsche Bank reduziert ihre Bilanzsumme - Verschuldungsquote soll verbessert werden	• Süddeutsche Zeitung, 4 Juli 2013
• Gegenwind für Banken; Ratingagenturen sehen das Investmentbanking kritisch	• Süddeutsche Zeitung, 29 Juni 2013
• Blackbox Deutsche Bank ; Wo sind sie – die Zeitbomben in den Bilanzen der Geldhäuser? Sind die Risiken nach der Krise wirklich verschwunden?	• Süddeutsche Zeitung, 6 Juni 2013
• Banken sollen sich selbst retten; Bail-in-Bonds gleichen Verluste aus, wenn Finanzinstitute in Not geraten	• Stuttgarter Zeitung, 29 Mai 2013
• Deutsche Bank will keine starre Risikobremse	• Süddeutsche Zeitung, 23 Mai 2013
• Regulierungspoker; Deutschland prescht vor: Ob es um das Trennbankensystem geht oder um die Abwicklung von Finanzinstituten	• Der Tagesspiegel, 6 April 2013
• Deutsche Bank // Verrechnet	• Der Tagesspiegel, 5 April 2013
• Der Zahlen-Trick // Die Deutsche Bank soll unter Josef Ackermann ihre Bücher frisiert haben. Jetzt prüft die Aufsicht den Fall	• Stuttgarter Zeitung, 5 April 2013
• Bilanzaffäre brockt Deutscher Bank Sonderprüfung ein	• Süddeutsche Zeitung, 5 April 2013
• Rechenprobe; Die Finanzaufsicht untersucht angebliche Milliardentricks der Deutschen Bank	• Die Welt, 5 April 2013
• Neuer Ärger für Deutsche Bank	• Frankfurter Rundschau, 5 April 2013
• Sonderprüfung in New York	• Berliner Zeitung, 5 April 2013
• Sonderprüfung in New York - Vorwurf der Verschleierung: Bundesbank schaut sich Bilanzen der Deutschen Bank genauer an	• Süddeutsche Zeitung, 30 März 2013
• FINANZEN; Deutsche Bank droht Klage	
• Einigung auf Bankenaufsicht	• Die Welt, 20 März 2013
• FINANZEN; Deutsche Bank muss zahlen	• Süddeutsche Zeitung, 15 März 2013
• Zoff in Übersee	• Frankfurter Rundschau, 5 März 2013

	• Trennungsschmerz - Europas Politiker wollen große Kreditinstitute spalten. Die Banker jammern	• Berliner Zeitung, 28 Januar 2013
Legal & tax issues	• Wirtschaft Kompakt • Prinzlinge bei Deutscher Bank? Institut soll in China Kinder hoher Beamter eingestellt haben • Zu wenig Verantwortung für den Staat; Vor der Euro Finance Week wirft Attac der Deutschen Bank Steuervermeidung vor • FINANZEN; „Null Toleranz“ für Betrüger • Banken sortieren Steuerflüchtlinge aus • Banken gehen auf Distanz • Steueroasen; Die Steuersparer	• Die Welt, 23 Dezember 2013, 854 Wörter, (Deutsch) • SZ, 11 Dezember 2013 • FR, 18 November 2013 • SZ, 29 April 2013 • Die Welt, 29 April 2013 • Berliner Zeitung 29 April 2013 • DIE ZEIT, 18 April 2013

	• Die Deutsche Bank zahlt gern // Jain und Fitschen begrüßen Vergleich mit der EU und betonen Integrität	• Der Tagesspiegel, 5 Dezember 2013
	• FINANZEN; Dubai gegen Deutsche Bank	• SZ, 19 November 2013
	• Weitere Klage gegen die Deutsche Bank	• Die Welt, 19 November 2013, 69 Wörter, (Deutsch)
	• Wirtschaft Kompakt	• Die Welt, 9 November 2013, 710 Wörter, (Deutsch)
	• 4,1 Milliarden gute Gründe	• DIE ZEIT, 31 Oktober 2013
	• Teure Bank-Altlasten	• Stuttgarter Zeitung, 30 Oktober 2013
	• Die Last der Vergangenheit; Deutsche Bank muss wegen juristischer Verfahren Milliarden zurücklegen	• FR, 30 Oktober 2013
	• Prozessflut überrollt Deutsche Bank	• Berliner Zeitung 30 Oktober 2013
	• Beste Unterhaltung; Deutsche Bank gerät ins Visier japanischer Aufsichtsbehörden	• SZ, 10 September 2013
	• Vergangenheit belastet Deutsche Bank // Aufarbeitung von Skandalen und hohe Rückstellungen für Rechtsstreitigkeiten zehren den Gewinn auf	• Der Tagesspiegel, 31 Juli 2013
	• Prozesse belasten die Deutsche Bank	
Legal & tax issues	• Deutsche Bank kämpft mit der Vergangenheit	• Stuttgarter Zeitung, 31 Juli 2013
	• Prozessrisiken kosten Rendite	• Die Welt, 31 Juli 2013
	• Regelverstöße schwächen Deutsche Bank - Institut legt weitere 630 Millionen für Prozessrisiken zur Seite. Anleger schicken Aktie in den Keller	• Die Welt, 31 Juli 2013
	• Rechtsstreit ohne Folge für Deutsche Bank - Geldhaus war falscher Adressat für Slumlord-Klage	• Berliner Zeitung 31 Juli 2013
	• Deutsche Bank und L. A. beenden Streit Institut haftet nicht für Zwangsräumungen	• Berliner Zeitung 1 Juli 2013
	• Deutsche Bank ; Streit über Slums in USA beigelegt	• Der Tagesspiegel, 1 Juli 2013
	• Wirtschaft Kompakt	• Stuttgarter Zeitung, 1 Juli 2013, 171 Wörter, (Deutsch)
	• Klage abgewiesen; Deutsche Bank kommt ungeschoren davon	• Die Welt, 1 Juli 2013
	• Streit über Verslumung beendet; Deutsche Bank einigt sich	• FR, 1 Juli 2013
	• Finanzen Kompakt	• FR, 20 Juni 2013
	• FINANZEN; Deutsche Bank unter Druck	• Die Welt, 20 Juni 2013
	• Deutsche Bank muss vor US-Gericht // Los Angeles will Institut wegen	• SZ, 5 Juni 2013 • Der Tagesspiegel, 26 April 2013

Zwangsräumungen zur Verantwortung ziehen	
• Deutsche Bank vor Gericht; Los Angeles wirft Geldinstitut vor, zahllose Häuser verfallen zu lassen	• SZ, 26 April 2013
• Deutsche Bank vor Gericht	• SZ, 26 April 2013
• DEUTSCHE BANK - Ärger mit der Aufsicht	• Der Spiegel, 15 April 2013
• NACHRICHTEN	• Berliner Zeitung 15 April 2013
• DEUTSCHE BANK - Teure Affären	• Der Spiegel, 25 März 2013
• Milliardengewinn ade; Deutsche Bank korrigiert Ergebnis wegen höherer Kosten für Rechtsstreitigkeiten	• SZ, 21 März 2013
• Klagen belasten Deutsche Bank	• Stuttgarter Zeitung, 21 März 2013
• Klagen pulverisieren Deutsche-Bank - Gewinn	• Die Welt, 21 März 2013
• Deutsche Bank muss mehr Geld zurücklegen	• FR, 21 März 2013
• Wirtschaft Kompakt	• Die Welt, 2 März 2013
• DEUTSCHE BANK - Post aus Nigeria	• Der Spiegel, 9 Februar 2013
• Miserable Stimmung	• FR, 1 Februar 2013
• FINANZEN; Deutscher Bank droht Strafe	• SZ, 14 Januar 2013

Table 4: Overview of news concerning financial/ economic system stability of DB (source: Factiva)

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Voluntary Standards versus Mandatory Regulations – What Works Best for Corporate Sustainability Disclosure?

KATRIN HUMMEL* DIANA FESTL-PELL**

ABSTRACT

This study investigates the effect of mandatory sustainability disclosure regulations on the sustainability disclosure level of firms by exploiting the fact that mandatory sustainability disclosure regulations differ across European countries. We are particularly interested in how the interaction between mandatory sustainability disclosure regulations and the adherence of firms to voluntary standards affects the corporate sustainability disclosure of firms. Our research design includes panel regressions for a sample of large European firms over a reporting period of five years and a difference-in-differences analysis for British firms and matched sample firms before and after the introduction of mandatory sustainability disclosure regulations in the UK. The results of regression analyses reveal a positive relationship between adherence to voluntary standards and sustainability disclosure as well as between mandatory sustainability disclosure regulations and sustainability disclosure. Furthermore, the interaction between adherence to voluntary standards and mandatory sustainability disclosure regulations is negatively associated with the sustainability disclosure levels of firms, thus indicating that the effect of mandatory disclosure regulations is less pronounced among firms that adhere to voluntary standards. We obtain similar results from the difference-in-differences analysis, but the substitutive effect of mandatory regulations in the treatment group relative to the control group is not significant. Taken together, although the findings suggest a positive effect of mandatory sustainability disclosure regulations on the sustainability disclosure level of firms, this effect is reduced if firms voluntarily adhere to sustainability disclosure standards.

Keywords: Sustainability Disclosure; Mandatory Regulations; Voluntary Standards; Interaction Effect

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1. Introduction

There is a strong tradition of voluntarism in the field of corporate sustainability disclosure. According to KPMG (2013, p. 22) approximately 70 percent of the 100 largest companies in each of the 41 countries studied provide information regarding their sustainability performance and thereby follow voluntary standards. In addition, since the beginning of the 21st century, an increasing number of countries have already introduced or are currently in the process of introducing mandatory sustainability disclosure regulations. However, the consequences of mandatory disclosure regulations with respect to sustainability disclosure are ambiguous for two major reasons. First, sustainability is a multi-dimensional construct (Elkington, 1997), with its material factors varying considerably across different industries and business models (Eccles, Krzus, Rogers, & Serafeim, 2012; Hummel & Festl-Pell, 2015). Hence, a uniform set of material disclosure items across all industries does not exist, which makes the design of explicit sustainability disclosure standards difficult. Second, little is known about the interplay between mandatory regulations and the adherence of firms to voluntary disclosure standards, although voluntary disclosure standards have a strong tradition in the field of corporate sustainability disclosure, and it is likely that the introduction of mandatory regulations affects the disclosure-inducing role of these voluntary standards. This interaction effect could be positive, thereby reinforcing the impact of the adherence to voluntary standards on firm disclosure, or negative if the positive effect of voluntarism is crowded-out by the introduction of mandatory disclosure regulations. It is thus important to account for the interaction between voluntary adherence to standards and mandatory disclosure regulations when investigating the effect of mandatory disclosure regulations on the sustainability disclosure level of firms.

This paper addresses this research question by investigating the effect of adherence to voluntary standards, mandatory sustainability disclosure regulations and the interaction between the two on the sustainability disclosure level of firms. We exploit the fact that there is substantial variation in the sustainability disclosure frameworks across European countries and concentrate on a sample of large European firms. For the measurement of the sustainability disclosure levels of firms, we rely on the Environmental, Social and Corporate Governance (ESG) disclosure score provided by the Bloomberg database. The Bloomberg ESG disclosure score is a measure that is commonly used in sustainability research as a proxy for the sustainability disclosure level of firms (e.g. Eccles,

Serafeim, & Krzus, 2011; Iannou & Serafeim, 2014). Our study design is twofold. First, for a sample period of five years, we run panel regressions to investigate the impact of adherence to voluntary standards, mandatory sustainability disclosure regulations and the interaction between the two variables on firms' sustainability disclosure. Second, we use a difference-in-difference design to investigate sustainability disclosure before and after the introduction of mandatory sustainability disclosure regulations in the UK for a sample of British firms and a matched control group. Findings from both analyses reveal a positive and significant impact of both adherence to voluntary standards and mandatory sustainability disclosure regulations on firms' sustainability disclosure level. However, we find that combining voluntary standards with mandatory sustainability disclosure regulations negatively affects the level of sustainability disclosure, thus suggesting that these two sustainability frameworks act as substitutes in our setting. With respect to this interaction effect, the results of the difference-in-differences estimation reveal that introduction of mandatory regulations induced a crowding-out effect in both the treatment group and the control group, but this effect does not significantly differ between the two groups. Our findings are robust to a number of model variations and pass additional robustness tests. Moreover, additional country-by-country analyses in our robustness section enable us to draw conclusions regarding the effectiveness of mandatory sustainability reporting regimes in different countries and thus with respect to different types of regulations. Although these findings need to be interpreted cautiously, they could pave the way for more in-depth studies of the impact and effectiveness of different regulatory design features.

The present study aims to contribute to the literature in several ways. First, this is the first large-scale empirical study regarding the effect of mandatory sustainability disclosure regulations in a European setting. Previous research in this area has mostly relied on hand-collected data that offer the opportunity to investigate firms' disclosure behavior in more detail at the expense of small sample sizes and limited generalizability of the results (Hummel & Festl-Pell, 2015; Larrinaga, Carrasco, Correa, Llena, & Moneva, 2002). Second, in contrast to previous research, we are interested in not only the effect of mandatory regulations on firms' sustainability disclosure level but also the effect of adherence to voluntary standards and the interaction between the two variables. While our study is most closely related to Ioannou and Serafeim (2014), we differ in that we analyze both voluntary standards and mandatory sustainability disclosure regulations as

well as investigate the interaction between the two. Our findings therefore emphasize the importance of both variables and their interaction for firms' sustainability disclosure. In particular, the negative interaction effect that is revealed in our study substantiates the scarce previous findings in the literature (Bebbington, Kirk, & Larrinaga, 2012; Fallan & Fallan, 2009). Third, our paper may send a cautionary signal to policy makers and regulators in charge of sustainability governance. Our paper suggests that the disclosure-enhancing effects of voluntary standards may be crowded-out by mandatory regulations. Therefore, policy-makers need to be aware of this effect when discussing implementation of mandatory sustainability disclosure regulations.

The remainder of the paper is structured as follows. The next section presents the theoretical background of the paper and the related literature and develops the main hypotheses. In section three, the research design is explained. In particular, an overview of mandatory sustainability disclosure regulations in Europe is presented, and the empirical model and main variables of interest are introduced. Section four provides the descriptive statistics, the main findings from our panel regression analyses and a number of robustness checks. The final section concludes the paper.

2. Theoretical Background, Literature Review and Hypotheses Development

As Fallan and Fallan (2009, p. 472) noted, there is no "universal notion of voluntarism." In this paper, we draw on the participation in the United Nations Global Compact (UNGC) and the adherence to the Global Reporting Initiative (GRI) sustainability reporting guidelines as proxies for firms' adherence to voluntary sustainability disclosure standards. The literature regarding voluntary sustainability disclosure (for a recent literature review, see Fifka (2013)) mainly refers to legitimacy theory, stakeholder theory and voluntary disclosure theory to explain firms' voluntary reporting behavior. Suchman (1995) defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions." This abstract concept of society is more precisely delineated by Freeman's (1984) definition of stakeholders as "any group […] who can affect or is affected by the achievement of the organization's objectives" (Wood, 1991). According to Gray, Kouhy, and Lavers (1995), legitimacy theory and stakeholder theory are "two (overlapping) perspectives" on the same issue. Legitimacy can be understood as an operational

resource that is provided by stakeholders to a company, and companies attempt to actively influence their legitimacy through corporate sustainability disclosure (O'Donovan, 2002; Sethi, 1978). Previous research has demonstrated that sustainability disclosure is positively associated with legitimacy-related variables, in particular firm size (Branco & Rodrigues, 2008; Chauvey, Giordano-Spring, & Patten, 2015; Dawkins & Fraas, 2011) and affiliation to industries that face high public scrutiny (Chauvey et al., 2015; Cho & Patten, 2007; Patten, 2002). Another explanation for why companies voluntarily disclose sustainability information is offered by voluntary disclosure theory. Subject to a number of conditions, especially truthful and costless disclosure and investors' rational interpretations of firms' disclosures, the equilibrium constitutes an "unraveling" of private information, i.e., full disclosure. However, if one or more of these conditions do not hold, less-than-full disclosure is likely to occur. In particular, if disclosure is not costless, the new equilibrium is described by the cost associated with the disclosure equaling the information's effect on the price of the company (Verrecchia, 1983). If the costs from disclosing (potentially harmful) information differ between different firm types, the model offers an explanation for why firms with superior sustainability voluntarily disclose sustainability information. Taken together, these theories suggest that there are a number of incentives for firms to voluntarily disclose sustainability information. These incentives are reflected in a strong tradition of firms' adherence to voluntary standards and initiatives. We therefore expect a positive relationship between firms' adherence to voluntary standards and firms' corporate sustainability disclosure, which is formally stated in H1.

H1: There is a positive relationship between firms' adherence to voluntary sustainability disclosure standards and firms' corporate sustainability disclosure level.

However, previous research has demonstrated that without legally binding regulations, some firms create an overly positive image of their sustainability performance through selective and biased sustainability disclosure (Cho, Guidry, Hageman, & Patten, 2012; Cho & Patten, 2007; Hummel & Schlick, 2015). As a consequence, an increasing number of countries have introduced mandatory sustainability disclosure regulations (KPMG, Centre for Corporate Governance in Africa, Global Reporting Initiative, & UNEP, 2013). Fallan and Fallan (2009, p. 475) argue that regulations can ensure a minimum disclosure level across all companies regardless of their size and industry affiliation. Similar reasons are considered by the regulator. For instance, the European

Union refers to enhancements in "the consistency and comparability of non-financial information" as the primary reason for mandatory disclosure regulations (No. 6 2014/95/EU). Likewise, the OECD (2010, p. 6) argues: "Stronger regulatory governance is the key to success." Such a positive relationship between mandatory disclosure regulations and firms' sustainability disclosure is documented in some previous empirical studies (Barbu, Dumontier, Feleagă, & Feleagă, 2014; Iannou & Serafeim, 2014; Patten, 2000). In addition, mandatory sustainability disclosure is regarded as an important step in the development towards a more sustainable economy. In this respect, the European Union states, "Indeed, disclosure of non-financial information is vital for managing change towards a sustainable global economy by combining long-term profitability with social justice and environmental protection." (No. 3 2014/95/EU) The French government, which introduced sustainability reporting regulations in 2001, followed by more extensive regulations in 2009 and 2010, even aims at creating competitive advantages for French companies on the global market as a result of sustainability reporting requirements (Delbard, 2008, p. 400). Taken together, advocates for mandatory sustainability disclosure regulations argue that such regulations positively impact firms' sustainability disclosure. This reasoning is formally stated in hypothesis H2a.

H2a: There is a positive relationship between mandatory sustainability disclosure regulations and firms' corporate sustainability disclosure level.

However, because mandatory regulations are associated with substantial direct and indirect costs, there is an ongoing debate regarding the necessity and economic consequences of mandatory disclosure regulations, in the areas of both financial disclosure (Leuz & Wysocki, 2008) and non-financial disclosure (Fallan & Fallan, 2009). In the area of non-financial disclosure, a considerable number of empirical studies reveal no significant or even a negative relationship between mandatory sustainability disclosure regulations and firms' sustainability disclosure (Bebbington et al., 2012; Chauvey et al., 2015; Fallan & Fallan, 2009; Larrinaga et al., 2002). Recently, Chauvey et al. (2015) examined the sustainability disclosure quantity and quality of 81 French firms for the reporting years 2004 and 2010, i.e., after the French sustainability disclosure regulations became effective. Although the authors observed increases in the space, breadth and informational quality of firms' sustainability disclosure between 2004 and 2010, they conclude that these increases are "largely driven by legitimacy concerns" and that the French regulations

have not been able "to lead to a proliferation of high-quality CSR reporting packages by French corporations" (Chauvey et al., 2015, p. 13). Larrinaga et al. (2002) investigated the environmental disclosure of Spanish companies between 1997 and 1999. Despite the introduction of an environmental disclosure standard, approximately 80 percent of the examined companies do not comply with the standard. In a follow-up study, Bebbington et al. (2012) compared the environmental disclosure of Spanish and United Kingdom (UK) companies between 1997 and 2001. The authors conclude that informal law (as in the UK) was more effective with respect to firms' environmental disclosure than formal law (as in Spain). Moreover, Fallan and Fallan (2009), who investigated the disclosure behavior of Norwegian companies between 1987 and 2005, demonstrated that the introduction of mandatory disclosure standards led to a decrease in the overall environmental disclosure, which was driven by a decrease in voluntary disclosure that was not compensated by a corresponding increase in mandatory disclosure. Fallan and Fallan (2009, pp. 484-485) conclude, "The firms might discover that their voluntary reporting so far had been more extensive than the modest legal requirements as from 1989. Consequently, modest regulations might legitimate the companies to decrease voluntary environmental disclosure volume." From a theoretical perspective, such a negative relationship arises from cost-benefit considerations if the mandatory disclosure level is associated with lower costs[1] and firms do not expect to obtain extra benefits from additional disclosures that exceed the mandatory disclosure level. Because mandatory disclosure regulations lower the signaling potential of voluntary disclosure (Mahoney, Thorne, Cecil, & LaGore, 2013; Sinclair-Desgagné & Gozlan, 2003), firms align their disclosure level with the mandatory disclosure requirements, which results in a decrease in the overall non-financial disclosure. This negative relationship is formally stated by the following hypothesis:

H2b: There is a negative relationship between mandatory sustainability disclosure regulations and firms' corporate sustainability disclosure level.

In addition to the isolated effects of firms' adherence to voluntary sustainability disclosure standards (H1) and mandatory sustainability disclosure regulations (H2a, H2b) on corporate sustainability disclosure, an interaction between the two variables is likely to exist. Such an

[1] The disclosure level of mandatory regulations is often rather modest because it is the result of compromises in majority-winning democracies.

interaction could affect firms' corporate sustainability disclosure either positively or negatively. In the case of a positive effect, the introduction of mandatory regulations would reinforce the positive relationship between firms' adherence to voluntary sustainability disclosure standards and corporate sustainability disclosure. Such a reinforcing effect could occur if firms interpret the introduction of mandatory regulations (regardless of its content) as evidence for a change toward a more sustainable economy. Firms increase their efforts in voluntary sustainability disclosure to avoid impending legitimacy gaps that arise from such a change in societal expectations (O'Donovan, 2002, p. 347). In addition, particularly superior sustainability reporters could enhance their sustainability disclosure after the introduction of mandatory disclosure regulations to protect the competitive advantages that result from their leading position. Moreover, the requirements defined in mandatory sustainability disclosure regulations are in general compatible with those of voluntary sustainability disclosure regulations, and some mandatory sustainability disclosure regulations even encourage the use of voluntary guidelines. Another reason for a reinforcement effect is revealed by Patten (2000). He argues that sustainability disclosure regulations come with increased public exposure and public pressure. He finds that firms increase not only environmental litigation disclosures but also non-litigation environmental disclosures. The reinforcing effect of the interaction between firms' adherence to voluntary sustainability disclosure standards and mandatory regulations is summarized by the following hypothesis:
H3a: There is a positive relationship between the interaction of firms' adherence to voluntary sustainability disclosure standards and mandatory sustainability disclosure regulations and firms' corporate sustainability disclosure level.

However, there could also be a substitutive relationship of mandatory disclosure regulations and firms' adherence to voluntary sustainability disclosure standards with respect to the effects of these determinants on firms' corporate sustainability disclosure. In this case, the effect of mandatory disclosure regulations would be less pronounced among firms that voluntarily adhere to sustainability disclosure standards and more pronounced among firms that are voluntarily engaged to a lesser extent. The positive effect of adherence to voluntary standards on the sustainability disclosure level would thus be crowded-out by the introduction of mandatory disclosure

regulations.[2] Without regulations, firms determine the level of voluntary disclosure based on voluntary standards, implicit norms and society's expectations. These implicit norms become explicit through the introduction of mandatory disclosure regulations, and mandatory sustainability disclosure regulations act as a substitute for voluntary standards. The total effect of mandatory disclosure regulations consists of a direct and an indirect effect and could be negative, notwithstanding a positive direct effect of mandatory regulations on sustainability disclosure. Utilizing a case-based approach, Bebbington et al. (2012) demonstrated that voluntary reporting regimes can have a stronger impact on firms' disclosure behavior than mandatory reporting regimes if voluntary reporting regimes are internalized as social norms. Fallan and Fallan (2009, p. 486) conclude that voluntarism is essential for improving the variety of environmental disclosure. The authors revealed a decrease in firms' overall environmental disclosure after the introduction of mandatory disclosure regulations because of substantial decreases in voluntary disclosure. This finding indicates a negative effect of the interaction between voluntary standards and mandatory disclosure regulations on firms' sustainability disclosure level. Such a crowding-out effect has been documented in the literature in a variety of different settings (Deci et al., 1999; Frey & Oberholzer-Gee, 1997; Gneezy & Rustichini, 2000). We formally state this crowding-out effect by the following hypothesis:

H3b: There is a negative relationship between the interaction of firms' adherence to voluntary sustainability disclosure standards and mandatory sustainability disclosure regulations and firms' corporate sustainability disclosure level.

3. Research Design

3.1 Voluntary Sustainability Standards

Companies that report regarding their environmental, social and governance achievements can conduct this reporting in accordance with voluntary sustainability standards. These standards differ in terms of their applicability to industries, countries and market specificities. We use participation in the UNGC and adherence to the GRI sustainability reporting guidelines as proxies for firms' adherence to voluntary sustainability disclosure standards because both standards involve

[2] Such a crowding-out of voluntary behavior is described by the theory of prosocial behavior (Bénabou & Tirole, 2006) and documented in a variety of different settings, such as child day-care (Gneezy & Rustichini, 2000), external rewards (Deci, Koestner, & Ryan, 1999), and acceptance of a nuclear waste repository (Frey & Oberholzer-Gee, 1997).

disclosure regarding sustainability-related issues, are applicable across different countries and industries and are well-established among large companies (KPMG, 2013). The UNGC is a United Nations initiative to encourage companies to integrate sustainability principles into their businesses and report about them. It was founded by UN Secretary-General Kofi Annan in 1999 and is today "the world's largest corporate sustainability initiative" (UNGC, 2015b). Participation in the UNGC requires disclosure regarding ten fundamental principles in the areas of human rights, labor, environment and anti-corruption. In contrast to the disclosure requirements of the UNGC, the GRI sustainability reporting guidelines are more precise, providing well-defined indicators for each aspect of firms' sustainability performance. With respect to the reporting scope, the current GRI standard G4 distinguishes between only "core" and "comprehensive" reporting, whereas former versions use an "application level" system to indicate the "extent of application or coverage of the GRI Reporting Framework" (GRI, 2011, 2013). The GRI guidelines are the most comprehensive and widely accepted voluntary guidelines in the field of sustainability disclosure (KPMG, 2013).

3.2 Mandatory Sustainability Disclosure Regulations in Europe

Sustainability disclosure regulations in Europe began in 2001, when the European Commission published its recommendation "on the recognition, measurement and disclosure of environmental issues in the annual accounts" (2001/453/EC). In 2003, this non-binding recommendation was followed by the EU Modernization Directive, which stipulates that companies' disclosure "to the extent necessary for an understanding of the company's development, performance or position, […] shall include both financial and, where appropriate, non-financial key performance indicators […] including information relating to environmental and employee matters" (2003/51/EC amending Article 46 of Directive 78/660/EC). Because of the vague phrasing, no direct legal obligation for non-financial reporting arises from this directive. It was only in December 2014 that the European Union issued a directive that mandated the "disclosure of non-financial and diversity information" for large companies from 2017 onwards (2014/95/EU). Thus, until 2017, mandatory sustainability disclosure regulations have been left to the national regulators in Europe, resulting in a variety of regulatory actions across European countries.

For the purpose of this study, national legislation has to meet the following requirements to qualify for mandatory sustainability disclosure regulations[3]:

- the legislation is issued by the government of a country,
- the legislation covers the reporting of sustainability information to the public,
- the legislation is generally binding,
- the legislation is applicable to listed companies, and
- the legislation covers a broad understanding of sustainability, including both environmental and social issues.

Following this understanding, legislation issued by stock exchanges, legislation that requires reporting on sustainability-related issues only to the government (such as in the Netherlands), legislation that entails only non-binding recommendations and guidelines (such as in Austria), legislation that is applicable to only state-owned companies (such as in Sweden and Finland) and legislation that addresses only environmental factors (such as in Spain) do not qualify as "mandatory sustainability disclosure regulations" in this study. Based on these requirements, we identify four European countries that had mandatory disclosure regulations in place in 2013 (the last reporting year of our sample): Denmark, France, Norway and the UK (Initiative for Responsible Investment, 2015; KPMG et al., 2013; van Wensen, Broer, Klein, & Knopf, 2011). Table 1 provides an overview of the mandatory sustainability disclosure regulations in these countries.

Insert Table 1 about here

Denmark

In October 2008, the Danish parliament adopted an amendment to the Danish Financial Statement Act (Arsregnskabsloven) that requires large companies to "supplement their management's review

[3] Because the literature does not provide such a list of criteria, these requirements are defined by the two authors for the purpose of this study. Albeit theoretically reasonable, the identification of countries with mandatory regulations that satisfies the list of criteria was not always clear-cut. We address this ambiguity in the robustness section of the paper.

with a report on social responsibility" (section 99a.(1) Danish Financial Statement Act). This report must contain information regarding "the policies of the business on social responsibility," "how the business realizes its policies on social responsibilities" and an "assessment of the business on achievements" (section 99a.(2) Danish Financial Statement Act). Large companies are firms that satisfy at least two of the following three criteria: total assets of more than DKK 143 million, net revenues of at least DKK 286 million and an average number of full-time employees of at least 250. The explanatory notes for the amendment explicitly refer to the GRI sustainability reporting guidelines and the UNGC as potential guidelines for firms' sustainability disclosure. The amendment became effective for the financial year starting on January 1st, 2009 or later. Fines for non-compliant reporting can be imposed.

France

France has a very long tradition of sustainability disclosure regulations. In 2001, the New Economic Regulation (Les Nouvelles Régulations Économiques, NRE) was introduced. This legislation mandates disclosure regarding social and environmental issues in the annual reports of companies listed on French stock exchanges from 2003 onwards. In a subsequent 2002 decree, 32 social, environmental and governance indicators were defined. The scope of the law is not clearly defined, and there are no sanctions for non-compliance (Delbard, 2008). To overcome some weaknesses of the NRE, in particular its flexibility, and extend the applicability to non-listed companies, the Grenelle I and Grenelle II Acts were developed and promulgated in 2009 and 2010, respectively. The new law was implemented in 2012 and become immediately applicable to all listed companies, and it became applicable to non-listed companies by 2013 or 2014, depending on firm size. Article 225 of the Grenelle II Act specifies 42 sustainability-related indicators about which companies must provide information in their annual reports. These indicators are generally consistent with the indicators required by voluntary reporting guidelines, although voluntary standards are not referenced. In addition, companies must disclose all sustainability-related actions, and comparability of the data with the previous year is recommended. Similar to the NRE, the Grenelle I and II Acts are "orientation laws" with no sanctions in the case of non-compliance.[4]

[4] However, because the Grenelle I and II Acts are part of the Commercial Code, shareholders may take legal actions in case of non-compliance.

Norway

In July 1998, the Norwegian Parliament adopted the Norwegian Accounting Act, which requires all Norwegian-listed companies to provide information about their environmental and social "environment" within the Director's report. In addition, the report must inform regarding measures to prevent or reduce negative impacts on the environment. The corresponding "Standard on Director's Report" specifies the required information in more detail. In 2013, the Norwegian Parliament passed the "Act amending the Accounting Act and certain other Acts (Social Responsibility Reporting)", which requires companies to disclose information on how they integrate social responsibility into their business strategies. Companies that already provide sustainability information based on the GRI sustainability reporting guidelines are exempt from this obligation. This amendment became effective for reporting years from 2013 onwards.

UK

In October 2013, "The Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013" came into force. This legislation requires all large- and medium-sized UK incorporated companies to provide a "Strategic Report" (replacing the formerly required business review) and additional sustainability-related information within the Directors' Report. The specific requirements depend on the size and listing status of the companies. Within the strategic report, listed companies have to provide information about human rights and employee issues "to the extent necessary for an understanding of the development, performance or position of the company's business" (The Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013/ 414C (7) Contents of strategic report). Despite this conditional applicability, companies must explicitly note if they do not provide this information, which is similar to a "comply or explain" approach. Moreover, companies have to disclose their annual amount of greenhouse gas emissions. Additional guidance is provided by the Financial Reporting Council (FRC) regarding the Strategic Report and by the Department for Environment Food & Rural Affairs (DEFRA) regarding the reporting of environmental impacts. The guidance by DEFRA includes reference to the GRI sustainability reporting guidelines. The regulations became effective "for periods ending on or after 30 September, 2013" (Financial Reporting Council, 2014). According to the Act, directors of the applicable companies who do not comply with the reporting requirements of the strategic report become personally liable and may face corresponding fines

(The Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013/ 414A (5)(6) Duty to prepare strategic report).

Taken together, the regulations in all four countries require disclosure not of a comprehensive sustainability report but rather sustainability-related information *within* the annual report. Except for France, the regulations are rather broad and do not require disclosure of concrete sustainability-related indicators. Even the French regulations define only the disclosure indicators but leave the companies leeway in choosing the presentation format and level of detail regarding these indicators. Although the regulations in France and the UK contain references to the GRI sustainability reporting guidelines, such references are not included in the French regulations and are included in only the amendment to the Norwegian regulations. Enforcement of the regulations appears to be weak in all countries, particularly in France, where the regulations have the character of an "orientation law," and the UK, where the disclosure is conditional on the materiality of the sustainability information for each company.

3.3 Empirical Model and Variables

Our research design includes panel regressions and a difference-in-differences analysis of the introduction of mandatory sustainability disclosure regulations in the UK. We use the following panel regression model to test our hypotheses regarding whether firms' voluntarism, mandatory sustainability disclosure regulations and the interaction between the two are related to firms' sustainability disclosure level:

$$(1)\quad CSD_{j,t} = \beta_0 + \beta_1 VOL_{j,t} + \beta_2 MREG_{j,t} + \beta_3 VOL_{j,t} \times MREG_{j,t} + \sum \beta_i CONTROLS_i + \sum \beta_k FIXED\_EFFECTS_k + \varepsilon$$

A graphical depiction of our model of corporate sustainability disclosure is provided in Figure 1:

Insert Figure 1 about here

In the above equation, subscript j denotes the bank and t denotes the year. Our proxy for firms' sustainability disclosure level is based on the ESG disclosure score provided by the Bloomberg

database, which “is by a large margin the most widely used data provider for stock market, financial and other corporate data.” (Ioannou & Serafeim, 2014) This disclosure score measures a firm’s disclosure regarding environmental, social and governance issues based on 100 of 219 raw data points. This disclosure score ranges in the interval between 0.1 and 100 and is tailored to different industries based on the materiality of the disclosure items. Our variable CSD is calculated as the standardized value of the Bloomberg ESG disclosure score for each reporting year and thus has a mean value of 0 and a standard deviation of 1 for each reporting year.

Our main variables of interest are firms’ adherence to voluntary sustainability disclosure standards (VOL), mandatory sustainability disclosure regulations (MREG) and the interaction between the two variables. We use participation in the UNGC and adherence to the GRI sustainability reporting guidelines to construct an index variable that measures firms’ adherence to voluntary standards. Other sustainability-related disclosure standards are rather new and thus not yet well-established (e.g., the sustainability accounting standards provided by the Sustainability Accounting Standards Board), industry-specific (e.g., the Equator Principles for the management and disclosure of environmental and social risk in project finance) or country-specific (the German Sustainability Code by the German Council for Sustainable Development). Although voluntary adherence to both of these standards requires disclosure regarding some fundamental aspects of sustainability, the reporting scope is still determined by the firm. VOL takes the value 1 if a firm voluntarily participates in the UNGC, 2 if a firm voluntarily adheres to the GRI sustainability reporting guidelines and 3 if a firm is engaged in both voluntary initiatives. For each sample firm and reporting year, we manually check participation in the UNGC and adherence to the GRI sustainability reporting guidelines based on the UNGC signatory list (UNGC, 2015a) and GRI reports list database (GRI, 2015), respectively.

MREG is a binary variable that takes the value 1 for each country and reporting year if mandatory sustainability disclosure regulations exist, as described in section 3.2 of this paper. Hence, MREG takes the value 1 starting in the first year of our study, 2009, for firms domiciled in Denmark, France or Norway and starting in 2013 for firms domiciled in the UK. A time structure for the mandatory sustainability disclosure regulation for these four countries is provided in Figure 2.

Insert Figure 2 about here

As Figure 2 displays, mandatory requirements have been introduced but never abolished during our sample time. Similarly, firms have moved from lower to higher disclosure standards, but not vice versa. We cannot measure the disclosure effects of firms which do not adhere to any voluntary scheme (VOL=0) and are not required to any mandatory disclosure (MREG=0) as these firms do not provide any measurable data for CSD. This issue of a one-way variation over time for the two main variables may affect the results of our empirical estimation. The measured explanatory power of the estimations might be biased upwards by this peculiarity of the data. We try to mitigate this issue by placing more emphasis on the interpretation of the type of relationship between the interaction of firms' adherence to voluntary sustainability disclosure standards and mandatory sustainability disclosure regulations and firms' corporate sustainability disclosure level, rather than the absolute disclosure effects of low versus high VOL and no versus existing MREG.

$CONTROLS_i$ refers to a number of firm-level control variables: corporate sustainability performance (CSP), firm size (SIZE), financial performance (ROA), leverage (LEV) and Tobin's Q (TOBIN). Previous research regarding corporate sustainability disclosure has demonstrated that corporate sustainability performance is an important determining variable for the level of (voluntary) corporate sustainability disclosure (e.g., Cho & Patten, 2007; Clarkson, Li, Richardson, & Vasvari, 2008; Clarkson, Overell, & Chapple, 2011; de Villiers & van Staden, 2011; Hummel & Schlick, 2015). Our variable CSP indicates a firm's level of corporate sustainability performance and is proxied by the arithmetic mean of the environmental, social and governance performance scores provided by the ASSET4 database (Thomson Reuters, 2015).[5] These three scores are based on more than 500 data points, which are aggregated into key performance indicators regarding the three pillars of environment, social and corporate governance. The aggregated score ranges in the interval between 0 (worst sustainability performance) and 100 (best sustainability performance). Following voluntary disclosure theory, firms with superior sustainability are more likely to provide a high sustainability disclosure level to reveal their superior performance to the market (Al-Tuwaijri, Christensen, & Hughes, 2004;

[5] Since the launch of the database in 2004, data from the ASSET4 database have been increasingly used in research, for instance by Trumpp, Endrikat, Zopf, and Guenther (2015) and Ziegler, Busch, and Hoffmann (2011).

Clarkson et al., 2008; Hummel & Schlick, 2015). Consequently, we expect to observe a positive relationship between CSP and CSD.[6] Firm size is measured as the logarithm of total employees[7] for each reporting year. In accordance with previous studies, we expect to observe a positive relationship between SIZE and CSD due to economies of scale with respect to information production costs and higher public visibility of large companies (Clarkson et al., 2008; Clarkson et al., 2011; Patten, 2002). Financial performance (ROA) is measured as the return on total assets for each reporting year. Some researchers argue that financial performance is positively related to corporate sustainability disclosure because of enhanced financial capacity (Cormier, Magnan, & van Velthoven, 2005; Ullmann, 1985), whereas others argue that sustainability disclosure serves as a means to demonstrate long-term competitive advantage during unprofitable years (Neu, Warsame, & Pedwell, 1998). As a consequence, we do not predict the sign for the relationship between ROA and CSD. We also account for the financial leverage of a company (LEV), which is measured as a firm's average total assets divided by the firm's average total common equity. Financial leverage serves as a proxy for creditors' influence, and we expect that highly leveraged firms provide a higher level of sustainability disclosure to meet creditors' informational needs (Branco & Rodrigues, 2008; Clarkson et al., 2011; Hummel & Schlick, 2015). Similar to previous studies, we control for Tobin's Q (TOBIN), which is measured as the sum of the market value of common equity and the book value of long-term debt and current liabilities divided by the book value of total assets. Tobin's Q typically serves as a proxy for information asymmetry (Clarkson et al., 2008; Clarkson et al., 2011), and we expect to find a positive relationship between Tobin's Q and CSD.

$FIXED\_EFFECTS_k$ denotes year, country, industry, or firm fixed effects to account for time-invariant (potentially unobservable) factors particular to a year, country or firm that may impact the corporate sustainability disclosure behavior between firms. We implement a country fixed effect structure as our binary variable MREG does not capture any differences in the mandatory

[6] Other studies – in accordance with legitimacy theory – have revealed a negative relationship between sustainability performance and sustainability disclosure (e.g., Cho et al., 2012; Clarkson et al., 2011; Dawkins & Fraas, 2011). (Hummel & Schlick, 2015) argue that these mixed findings can be reconciled by "moving the focus of inquiry from the quantity of sustainability disclosure towards its quality." Because our CSD measure captures not only quantity but also quality, we expect to observe a positive relationship between CSP and CSD.

[7] We choose logarithm of total employees as a proxy for firm size as our model includes very diverse industries, such as the asset-intense financial industry and the sales-intense consumer goods industry. Hence, other common proxies for size, such as total assets or sales, are less meaningful and comparable in our setting.

regulations which could possibly influence the sustainability disclosure behavior of firms – for example, firms in countries where disclosure enforcement is tougher are likely to exhibit higher quality sustainability disclosure once compared to firms from countries where enforcement is weaker. We estimate several versions of equation (1).[8] All specifications are estimated using heteroscedasticity-robust standard errors that are clustered at the country level.

In addition, we perform a difference-in-differences estimation in which we analyze firms' sustainability disclosure before and after the introduction of the British mandatory regulations based on the following regression specification:

$$CSD_{j,t} = \beta_0 + \beta_1 VOL_{j,t} + \beta_2 POST + \beta_3 TREATED + \beta_4 VOL_{j,t} \times POST + \beta_5 VOL_{j,t} \times TREATE$$
$$+ \beta_6 POST \times TREATED + \beta_7 VOL_{j,t} \times POST \times TREATED +$$
$$\sum \beta_i CONTROLS_i + \sum \beta_k FIXED\_EFFECTS_k + \varepsilon \quad (2)$$

CSD, VOL, and $CONTROLS_i$ are identical to the variables used in equation (1). POST is a binary variable that takes the value 1 beginning in the period of mandatory regulations (i.e., the year 2013) and 0 before this period. TREATED is a binary variable that takes the value 1 if a firm is domiciled in the UK. $FIXED\_EFFECTS_k$ includes year, industry, and country fixed effects.

3.4 Sample Selection and Description

Our sample period starts in 2009, the year that mandatory sustainability disclosure regulations became effective in Denmark, and runs through 2013, the last year with sufficient data available in the databases. Our initial sample includes 1,240 firms that are domiciled in a European country[9] and for which the Bloomberg ESG disclosure score is available for the reporting year 2013. Because of missing values for our control variables, our final sample consists of 3,836 firm-year observations over 5 years. An overview by country and year is provided in Table 2, Panel A. This sample is named "full sample" and used for the estimation of equation (1).

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[8] We use a fixed effects model at different stages (year, industry, country) rather than a random effects model as we want to allow the individual-specific effect of CSD to be correlated with the explanatory variables. The Durbin-Wu-Hausman Test also rejects the null hypothesis and hence, confirms the consistency and preference of the fixed effects model over a random effects model.

[9] We exclude Turkey and countries for which the disclosure score is available for less than ten firms per country in 2013 (for instance, Estonia, Lithuania, and Romania).

Insert Table 2 about here

In addition, we use propensity score matching to construct a "matched sample" that consists of firms that are domiciled in the four countries with mandatory regulations in place and a control group of matched firms. We match firms in France, Denmark, and Norway in 2009 and firms in the UK in 2012 in terms of sustainability performance, adherence to voluntary standards and whether the firm belongs to an environmentally sensitive industry (Chauvey et al., 2015; Cho & Patten, 2007; Patten, 2002). We use a nearest-neighbor propensity score matching procedure (Rosenbaum & Rubin, 1983) based on the following logit regression model:

(3) $$TREATMENT_{j,t} = \beta_0 + \beta_1 CSP_{j,t} + \beta_2 VOL_{j,t} + \beta_3 DUMMY\_ESI + \varepsilon$$

TREATMENT is a binary variable that takes the value 1 if a firm belongs to the treatment group (i.e., is domiciled in France, Denmark, Norway, or the UK) and 0 if a firm belongs to the control group. We estimate the logit regression model for each of the four countries separately and use the estimated probabilities of treatment for each firm-year in the sample to perform a nearest-neighbor match. Our "matched sample" consists of all treated firms and matched control firms and is described in more detail in Table 2, Panel B. In total, we obtain 2,709 firm-year observations. We use this sample to alternatively estimate equation (1). Moreover, we use the sub-sample of firms domiciled in the UK and their matched pairs to estimate equation (2).

4. Empirical Results

4.1 Descriptive Statistics

Insert Table 3 about here

Table 3 presents descriptive statistics for the main variables of interest, namely CSD, VOL, and MREG, by year and country for the full sample. There are substantial differences in corporate sustainability disclosure among the sample countries. On average, firms domiciled in Spain and Finland exhibit the highest disclosure scores, whereas firms domiciled in Poland and Luxembourg

obtain the lowest disclosure scores. Regarding countries with mandatory regulations in place, only France and Norway obtain above-average disclosure scores, whereas Denmark and the UK obtain disclosure scores that are below the year-average. Hence, the mere existence of mandatory sustainability disclosure regulations is not automatically associated with higher disclosure scores, which supports the reasoning that there are other important factors that impact firms' corporate sustainability disclosure. As expected, firms' adherence to voluntary standards seems to be related to the disclosure level because countries with higher values for VOL (greater than 1.5, with Denmark defining the threshold level) also obtain above-average disclosure scores.

Insert Table 4 about here

This relationship can also be observed in the correlation statistics of our regression variables (Table 4, Panel A). There is a positive and significant relationship (at the 1% level) between firms' adherence to voluntary standards and corporate sustainability disclosure and a weak positive and significant relationship (at the 1% level) between the existence of mandatory regulations and corporate sustainability disclosure. The relationship between VOL and MREG is also positive and significant, which is a weak indication of a reinforcing effect of MREG on the relationship between voluntarism and corporate sustainability disclosure. However, since the effect of other variables is not controlled for and MREG is a binary variable, this finding has to be interpreted cautiously. Regarding the control variables, most relationships are in accordance with our expectations (except for TOBIN). In particular, there is a strong positive relationship between CSP and CSD, which indicates that superior sustainability performance is related to higher sustainability disclosure scores. We also observe positive relationships between SIZE and CSD and between LEVERAGE and CSD and negative relationships between ROA and CSD and between TOBIN and CSD.

4.2 Findings of Panel Regressions

Table 5 documents the findings of the panel regression analyses for predicting firms' corporate sustainability disclosure. We present stepwise regression models, gradually introducing our main variables of interest, the interaction between these two variables and the control variables. The

results presented in Column IV and Column V correspond to our full regression model, i.e., equation (1). The results for the full sample (Panel A) and the matched sample (Panel B) are almost identical.

Insert Table 5 about here

Regarding firms' adherence to voluntary standards, all model specifications reveal a positive and significant relationship (at the 1% level) with CSD, thereby supporting hypothesis H1. Firms' engagement in voluntary reporting regimes is positively associated with firms' corporate sustainability disclosure. Our results are therefore in line with existing literature (Branco & Rodrigues, 2008; Chauvey, Giordano-Spring, & Patten, 2015; Cho & Patten, 2007; Dawkins & Fraas, 2011; Patten, 2002), which suggests that there are a number of incentives for firms to voluntarily disclose sustainability information.

The existence of mandatory disclosure regulations is also in almost all specifications positively and significantly associated with firms' corporate sustainability disclosure. Thus, we find support for hypothesis H2a, which is in line with prior literature that also found a positive relationship between mandatory regulation and sustainability disclosure, such as Barbu et al. (2014) and Ioannou and Serafeim (2014). This finding also supports regulation advocates who call for sustainability disclosure regulations as a means to improve firms' corporate sustainability disclosure.[10]

Finally, we introduce the interaction between VOL and MREG, which is negatively and significantly related to CSD in all specifications, thereby supporting hypothesis H3b. This negative interaction effect reduces the positive effects of VOL and MREG on firms' sustainability disclosure level. Hence, we find empirical evidence for a substitutive relationship between

[10] Likely because of low within-firm variation in MREG, the positive relationship becomes insignificant when we include firm-fixed effects and suppress country-fixed effects. We test this altered relationship in panel regression analyses by country in the robustness tests.

adherence to voluntary standards and mandatory regulations with respect to the sustainability disclosure level, which is in line with existing literature on crowding-out effects (see e.g. Deci et al., 1999; Frey & Oberholzer-Gee, 1997; Gneezy & Rustichini, 2000). Depending on the model specification, the total effect of MREG ($\beta_2 + \beta_3$) remains positive (specification IV), indicating that the crowding-out effect is smaller than the regulatory effect, i.e., regulation still has a marginal positive net effect, or even becomes negative (specification V, which includes firm-fixed effects). Hence, in the latter case, which includes firm-fixed effects, but suppresses country-fixed effects, the crowding-out effect exceeds the regulatory effect, the net effect of which being less disclosure. This finding of a negative crowding-out effect is remarkable, given that some of the regulations explicitly refer to the UNGC and the GRI reporting guidelines.

In addition, the results indicate positive and significant relationships between CSP and CSD (at the 1% level) and between SIZE and CSD (at the 10% level), which is consistent with the findings of previous research (Al-Tuwaijri et al., 2004; Clarkson et al., 2008; Hummel & Schlick, 2015; Patten, 2002). In agreement with the reasoning of voluntary disclosure theory, firms with superior sustainability demonstrate their superior performance to the market through high sustainability disclosure. Moreover, larger firms are associated with higher disclosure scores because of economies of scale and higher public visibility.

4.3 Findings from the Difference-in-Differences Estimation

Next, we apply a standard difference-in-differences design to study firms' sustainability disclosure before and after the introduction of mandatory sustainability disclosure regulations in the UK. We choose the UK as the domicile country to examine the difference in sustainability disclosure because one-third of all sample firms are domiciled in the UK and this country introduced mandatory sustainability disclosure regulations during our sample period. Our sample consists of firms domiciled in the UK (i.e., the treatment group with TREATED=1) and their matched pairs (i.e., the control group with TREATED=0) and includes only observations of the year before and the year of the introduction of mandatory regulations, i.e., 2012 and 2013, resulting in a total of 752 firm-year observations. The results of the stepwise regression analyses are presented in Table 6, with Columns IV, V and VI corresponding to the full model, as described by equation (2).

Insert Table 6 about here

Results for the isolated effects are presented in Column I (VOL and TREATED), Column II (VOL and POST) and Column III (POST and TREATED). Consistent with our findings from the panel regression analyses, β_1 is positive and significant in all models, thereby indicating that firms' adherence to voluntary standards is positively related to CSD. In Column I, the coefficient of VOLxTREATED is significantly negative, thus indicating a substitutive relationship between firms' adherence to voluntary standards and membership in the treatment group with respect to affecting sustainability disclosure. This result implies that the impact of adherence to voluntary standards on the sustainability disclosure level is higher for non-treated firms. Similarly, in Column II, we obtain a negative and significant coefficient of VOLxPOST, which is another indication for crowding-out effects. More precisely, the impact of adherence to voluntary standards on the sustainability disclosure level is marginally higher[11] (for both treatment and control firms) before mandatory regulations become effective. Regarding the introduction of mandatory regulations, we find no impact on corporate sustainability disclosure in our reduced models. In particular, the coefficient of POSTxTREATED is not significant if the impact of firms' adherence to voluntary sustainability disclosure standards is not accounted for (Column III).

Columns IV, V and VI present the results for the full model according to equation (2). These results are almost identical across the three specifications. Again, we find support for hypothesis H1 because there is a positive and significant impact of firms' adherence to voluntary sustainability standards on firms' corporate sustainability disclosure. The results of the difference-in-differences specification also supports hypothesis H2a because there is a positive and significant effect of the introduction of mandatory sustainability disclosure regulations on firms' sustainability disclosure (the coefficient for POSTxTREATED is positive and significant). In addition, the results indicate that firms in the treatment group generally have higher disclosure scores than firms in the control group (the coefficient for TREATED is positive and significant). We also find marginal evidence

[11] The magnitude of VOLxPOST is comparably low, with values between -0.0519 in specification VI and -0.0922 in specification II.

for crowding-out effects because we obtain negative and significant coefficients for VOLxPOST (except for Column VI) and VOLxTREATED. Therefore, the positive effect of firms' adherence to voluntary corporate sustainability disclosure standards is crowded-out when mandatory sustainability disclosure regulations become effective and if the firm belongs to the treatment group. However, the crowding-out effect of mandatory regulations and firms' adherence to voluntary standards for the treated firms relative to the control firms, i.e., the difference-in-difference estimator β_7, is not significant. The results for the control variables slightly differ from the results obtained for the full sample (Table 5). In particular, SIZE becomes insignificant, whereas we obtain a positive relationship between ROA and CSD and a negative relationship between TOBIN and CSD in some model specifications (Columns IV and V). Regarding sustainability performance, we again obtain positive and significant results in all models.

Taken together, the results of this quasi-experimental analysis indicate that even a general sustainability disclosure regulation that does not mandate comprehensive disclosure on all (material) sustainability-related topics, as is the case for the UK regulations, has a positive impact on firms' sustainability disclosure. Moreover, we do not obtain a crowding-out effect for the treatment group that is significantly different from that in the control group.

4.4 Robustness

We perform several robustness tests to substantiate our results. First, we soften the list of criteria for the identification of countries with mandatory sustainability disclosure regulations in place (section 3.2) and include countries with mandatory *environmental* disclosure regulations in place, namely Spain (Bebbington et al., 2012).[12] Because sustainability disclosure includes both environmental and social disclosures, one may argue that our findings are biased if we do not account for countries with mandatory environmental regulations in place. Indeed, the descriptive statistics in Table 3 reveal that firms domiciled in Spain are among the companies with the highest average disclosure scores. Our new variable, MESREG, takes the value 1 starting in 2009 for firms domiciled in Denmark, France, Spain, and Norway and starting in 2013 for firms domiciled in the UK. We adjust the matching procedure and re-run the regression analyses including MESREG

[12] Although the Netherlands also requires listed companies to publish annual environmental reports, these reports do not need to be disclosed to the public. We thus do not include the Netherlands in this robustness check.

instead of MREG. The new matching procedure results in a slightly reduced matched sample of 2,633 firm-year observations. The results are presented in Table 7 and are similar to the main findings presented in Table 5. Thus, our findings remain stable if we account for both mandatory sustainability and mandatory environmental disclosure regulations, which, again, supports hypotheses H1, H2a and H3b.

Insert Table 7 about here

Next, we investigate whether our results change if we exclude the governance disclosure dimension from our dependent variable CSD. Although the ESG concept is the prevailing concept in the capital market for addressing sustainability-related issues (Eccles et al., 2011), the concept of sustainability as described by the triple-bottom-line approach does not explicitly include the corporate governance dimension. However, both the UNGC and the GRI guidelines include governance-related disclosure items, and researchers increasingly rely on data provided by databases that are typically tailored to the needs of the capital market participants rather than the academic community. Therefore, we are confident that our CSD measure captures the key aspects of sustainability disclosure. Our new variable ESD is calculated as the arithmetic mean of the environmental and social disclosure score provided by the Bloomberg database. Similarly, our new variable ESP is also calculated as the arithmetic mean of the environmental and social performance score provided by the Thomson Reuters database. We adjust the matching procedure[13] and re-run the regression analysis with ESD and ESP instead of CSD and CSP. Because the subcategories of the ESG disclosure score are not provided for all firms, the full sample is reduced to 3,562 firm-year observations, and the matched sample is reduced to 2,434 firm-year observations. The results are presented in Table 8 and are almost identical to the results of our main regression analyses (Table 5). Therefore, the inclusion of the governance dimension in both our CSD and CSP variables does not bias our findings.

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[13] We match firms based on ESP instead of CSP, VOL and DUMMY_ESI.

Insert Table 8 about here

Finally, we rerun the regression analyses (equation (1)) for each country with mandatory regulations in place and its matched control group separately. This analysis enables us to check whether our findings substantially differ among the different countries with mandatory regulations in place. Moreover, the results enable us to draw some very preliminary conclusions regarding the consequences of different types of mandatory regulations with respect to firms' sustainability disclosure level. The results are presented in Table 9.

Insert Table 9 about here

Although the positive effect of firms' adherence to voluntary sustainability standards prevails for all countries, the positive impact of mandatory sustainability disclosure regulations prevails only for Norway and the UK. Similarly, the interaction between voluntarism and mandatory disclosure regulations is significant only for Norway and the UK. The findings are in line with our prior results of positive net effects of regulation when country-fixed effects are included, but negative net effects of regulation when they are suppressed. These results therefore provide initial indications of which type of disclosure regulation is the most effective in stimulating firms' sustainability disclosure level. In both cases, the regulations are rather broad and not focused on specific sustainability-related performance indicators. Moreover, both regulations mandate the disclosure of sustainability-related information in firms' director's/strategic reports within the annual report. Therefore, it appears that more general sustainability disclosure regulations seem to be more effective with respect to firms' corporate sustainability disclosure. Remarkably, whether the mandatory regulations explicitly refer to the GRI sustainability reporting guidelines does not seem to affect the impact of VOLxMREG on firms' sustainability disclosure level. The findings illustrate that further and more in-depth studies are needed to enhance our understanding of the impact of different design elements of regulations on firms' sustainability disclosure.

5. Conclusions

We exploit the fact that mandatory sustainability disclosure regulations vary across European countries to study the impact of adherence to voluntary standards and the existence of mandatory sustainability disclosure regulations on the sustainability disclosure level of large European firms. Our research design includes panel regressions based on 3,836 European firms and five reporting years and a difference-in-differences estimation regarding the introduction of mandatory sustainability disclosure regulations in the UK. In addition to the effects of firms' adherence to voluntary standards and the existence of mandatory sustainability disclosure regulations on firms' sustainability disclosure level, we are particularly interested in the effects of the interplay between these two variables. In line with existing literature about voluntary incentives for disclosure (e.g. Branco & Rodrigues, 2008; Chauvey, Giordano-Spring, & Patten, 2015; Cho & Patten, 2007; Dawkins & Fraas, 2011; Patten, 2002), the results reveal positive and significant relationships between firms' adherence to voluntary standards and their sustainability disclosure level. At the same time, we also find positive relationships between mandatory sustainability disclosure regulations and firms' sustainability disclosure level, thereby supporting previous research that fosters legally binding regulations to prevent firms from selective and biased sustainability disclosure
(Cho, Guidry, Hageman, & Patten, 2012; Cho & Patten, 2007; Hummel & Schlick, 2015). Regarding the interaction between voluntary standards and mandatory regulations, we find a negative and significant relationship with firms' corporate sustainability disclosure level. Hence, the impact of adherence to voluntary standards on firms' sustainability disclosure is lower in countries with mandatory regulations, thereby suggesting a substitutive relationship between voluntary standards and mandatory regulations. This is therefore the first empirical study which supports the crowding-out effect as suggested by the theory of prosocial behavior (Bénabou & Tirole, 2006) in the context of sustainability disclosure. Although we also find this effect in the difference-in-difference specification, it is not significantly different for firms domiciled in the UK compared with matched firms domiciled in countries without mandatory regulations in place.

Taken together, our findings are relevant for policy-makers and practitioners alike. First, our study indeed reveals a positive impact of mandatory sustainability disclosure regulations on firms' sustainability disclosure, thereby supporting policy advocates who call for mandatory regulations

to prompt sustainability disclosure. At the same time, we find a substitutive relationship between voluntary standards and mandatory disclosure regulations, thus indicating that the impact of voluntary standards on sustainability disclosure is weaker in countries with mandatory disclosure regulations. Policy-makers need to account for this substitutive relationship when mandating corporate sustainability disclosure, for instance, by explicitly referencing voluntary sustainability standards and initiatives in the sustainability disclosure legislation. Moreover, the results of our study indicate that adherence to voluntary reporting standards is positively associated with firms' corporate sustainability disclosure level in all model specifications. Therefore, adherence to voluntary sustainability disclosure standards is an important lever for enhancing firms' sustainability disclosure level.

Our results are also subject to some limitations, which suggests avenues for future research. First, there is substantial variation in mandatory sustainability disclosure regulations in terms of the content and scope of sustainability disclosure, the reference to voluntary disclosure guidelines and the enforcement mechanisms. This study is a first attempt to empirically assess the impact of mandatory sustainability disclosure regulations at an aggregated level. As a consequence, our main variable of interest, MREG, cannot account for this variation. Future research could study the impact of these differences in more detail, thereby providing recommendations regarding the concrete design of mandatory sustainability disclosure regulations. Moreover, because market regulators (yet not in Europe) are also introducing sustainability-reporting requirements, another interesting research question is *which* regulator is most effective at improving firms' sustainability disclosure level.[14] Second, the generalizability of the findings from our study is limited to countries with a generally high level of firms' sustainability disclosure, namely developed countries. It might be an interesting opportunity for future research to test our hypotheses based on sample firms that are domiciled in developing countries. Third, because of limitations in data availability and the timing of mandatory disclosure regulations, this study reports findings from pre-post-comparisons only with respect to the introduction of mandatory disclosure regulations in the UK. A clean setting for future research based on pre-post-comparison will be provided by the introduction of

[14] Several stock exchanges, such as those in Brazil, China, Malaysia and South Africa, have introduced sustainability disclosure as listing requirements.

mandatory disclosure regulations within the European Union member states in 2017 (Directive 2014/95/EU).

Table 1: Overview of Mandatory Sustainability Disclosure Regulations in Europe

	Denmark	**France**	**Norway**	**UK**
Legislation	Amendment of the Danish Financial Statement Act in October 2008	- New Economic Regulations (NRE) - Grenelle I and II	- Norwegian Accounting Act 1998 (No. 56) - Amendment to the Accounting Act	Companies Act 2006 Regulations 2013
Content of legislation	Supplement the management's review with a report on social responsibility	- NRE: disclose information on 32 environmental and social indicators - Grenelle I and II: disclose information on 42 environmental and social indicators	- No. 56: disclose sustainability-related information in the Director's report - Amendment: disclose information on how social responsibility is integrated into business strategies	- Disclose sustainability-related information in the strategic report - Disclose annual quantity of greenhouse gas emissions
References to GRI sustainability reporting guidelines	YES	NO	- No. 56: NO - Amendment: YES	Partly (guidance provided by the DEFRA)
References to UNGC Principles	YES	NO	- No. 56: NO - Amendment: YES	NO
Type of companies subject to the regulations	Large companies	- NRE: companies listed on French stock exchanges - Grenelle I and II: listed and unlisted companies of certain size with a physical presence in France	- No. 56: Norwegian-registered companies - Amendment: large companies	Large and medium size UK incorporated companies
Sanctions	Fines for non-compliant reporting can be imposed	No sanctions for non-compliance	- No. 56: No penalties or fines for noncompliance	Personal liability of firm directors and corresponding fines
Date of effectiveness	2009	- NRE: 2003 - Grenelle I: 2010 - Grenelle II: 2012	- No. 56: 1999 - Amendment: 2013	2013

Table 2: Sample Composition by Country

Panel A: Composition of the "full sample" by country						
	2009	**2010**	**2011**	**2012**	**2013**	**Total**
Austria	12	14	13	14	12	65
Belgium	16	21	23	22	21	103
Switzerland	51	53	61	66	62	293
Germany	57	67	75	77	74	350
Denmark	19	24	25	25	25	118
Spain	33	32	37	40	40	182
Finland	19	22	22	22	23	108
France	77	83	84	92	85	421
UK	235	244	263	266	273	1,281
Greece	11	12	12	12	10	57
Ireland	17	18	21	24	21	101
Italy	34	35	41	40	33	183
Luxembourg	5	5	6	6	5	27
Netherlands	18	25	27	30	35	135
Norway	13	16	16	17	15	77
Poland	3	12	16	19	13	63
Portugal	9	9	11	11	9	49
Sweden	41	43	45	46	48	223
Total	670	735	798	829	804	3,836

Panel B: Composition of the "matched sample" by country						
	2009	**2010**	**2011**	**2012**	**2013**	**Total**
Austria	5	5	4	5	4	23
Belgium	8	9	11	11	11	50
Switzerland	26	28	30	31	29	144
Germany	28	32	32	33	32	157
Denmark	19	24	25	25	25	118
Spain	12	14	17	17	16	76
Finland	7	8	8	8	8	39
France	77	83	84	92	85	421
UK	235	244	263	266	273	1,281
Greece	1	1	1	1	1	5
Ireland	11	12	13	13	13	62
Italy	11	11	13	13	12	60
Luxembourg	2	2	2	2	2	10
Netherlands	8	10	8	12	12	50
Norway	13	16	16	17	15	77
Poland	0	1	2	3	3	9
Portugal	5	4	6	6	5	26
Sweden	20	19	20	21	21	101
Total	488	523	555	576	567	2,709

We use propensity score matching to construct a "matched sample" that consists of firms that are domiciled in the four countries with mandatory regulations in place (Denmark, France, UK, Norway) and a control group of matched firms, i.e. the "matched sample" consists of all treated firms (full sample=matched sample for Denmark, France, UK, Norway) and matched control firms.

Table 3: Descriptive Statistics by Year and Country

	2009	2010	2011	2012	2013	Total
Austria						
#	12	14	13	14	12	65
CSD	-0.5893	-0.2771	-0.2249	-0.1104	-0.0796	-0.2519
VOL	1.0833	1.1429	1.3846	1.2857	1.5833	1.2923
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Belgium						
#	16	21	23	22	21	103
CSD	-0.1978	-0.2159	-0.2778	-0.5147	-0.5165	-0.3520
VOL	1.0625	1.2857	1.2174	1.0455	1.0000	1.1262
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Switzerland						
#	51	53	61	66	62	293
CSD	-0.0669	-0.2512	-0.2219	-0.1779	-0.1486	-0.1748
VOL	1.0588	1.1321	1.0820	1.1364	1.3226	1.1502
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Germany						
#	57	67	75	77	74	350
CSD	-0.0073	-0.1034	-0.1254	-0.1099	-0.1389	-0.1014
VOL	1.5614	1.3433	1.3467	1.4545	1.6622	1.4714
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Denmark						
#	19	24	25	25	25	118
CSD	-0.2731	-0.1749	-0.2435	-0.1161	-0.2158	-0.2015
VOL	1.2105	1.5417	1.6400	1.6400	1.5600	1.5339
MREG	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Spain						
#	33	32	37	40	40	182
CSD	0.7954	0.8170	0.8417	0.8130	0.7001	0.7915
VOL	2.4545	2.4063	2.4595	2.4750	2.5750	2.4780
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Finland						
#	19	22	22	22	23	108
CSD	0.3064	0.4813	0.5523	0.7060	0.7682	0.5719
VOL	1.4211	1.7727	2.0455	2.2273	2.1739	1.9444
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
France						
#	77	83	84	92	85	421
CSD	0.2604	0.3537	0.4339	0.4734	0.5400	0.4164
VOL	1.5195	1.5783	1.7143	1.6848	1.9882	1.7007
MREG	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
UK						
#	235	244	263	266	273	1281
CSD	-0.1589	-0.1334	-0.1252	-0.1235	-0.1224	-0.1320
VOL	0.4766	0.5492	0.5779	0.5639	0.5751	0.5504
MREG	0.0000	0.0000	0.0000	0.0000	1.0000	0.2131
Greece						
#	11	12	12	12	10	57
CSD	0.0942	-0.0848	-0.0273	0.1079	0.0561	0.0271
VOL	2.2727	1.8333	1.7500	1.9167	2.0000	1.9474
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ireland						

#	17	18	21	24	21	101
CSD	-0.6289	-0.5662	-0.5137	-0.5707	-0.5611	-0.5658
VOL	0.4118	0.5000	0.5238	0.4167	0.6667	0.5050
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	2009	**2010**	**2011**	**2012**	**2013**	**Total**
Italy						
#	34	35	41	40	33	183
CSD	0.3125	0.3570	0.1566	0.1005	0.0754	0.1970
VOL	1.4706	1.7429	1.5122	1.6000	1.6061	1.5847
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Luxembourg						
#	5	5	6	6	5	27
CSD	-0.6305	-0.7573	-0.5780	-0.5733	-0.6009	-0.6241
VOL	0.6000	0.6000	0.5000	0.8333	1.0000	0.7037
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Netherlands						
#	18	25	27	30	35	135
CSD	0.1834	0.1162	0.1244	0.0189	-0.1043	0.0480
VOL	2.0000	1.9600	1.8519	1.9333	1.8571	1.9111
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Norway						
#	13	16	16	17	15	77
CSD	0.1668	0.1143	0.2608	0.1351	0.0492	0.1455
VOL	2.3077	1.9375	1.8750	2.0000	2.0000	2.0130
MREG	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Poland						
#	3	12	16	19	13	63
CSD	-1.1595	-1.2921	-1.2679	-1.3718	-1.2070	-1.2861
VOL	1.6667	0.6667	0.6250	0.7368	1.0000	0.7937
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Portugal						
#	9	9	11	11	9	49
CSD	0.2143	0.4221	0.4569	0.2355	0.4459	0.3542
VOL	1.5556	1.7778	1.8182	1.3636	2.0000	1.6939
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sweden						
#	41	43	45	46	48	223
CSD	0.0669	0.2046	0.1649	0.2097	0.1011	0.1500
VOL	1.3171	1.6744	1.8667	2.0870	2.1250	1.8296
MREG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total (full sample)						
#	670	735	798	829	804	3,836
CSD	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
VOL	1.1299	1.2000	1.2243	1.2557	1.3470	1.2357
MREG	0.1627	0.1673	0.1566	0.1616	0.4950	0.4950

Table 3 reports descriptive statistics by country for the main variables of interest.

Table 4: Descriptive Statistics for the Regression Variables

Panel A: Correlation Matrix for Regression Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) CSD	1.0000							
(2) VOL	0.7190	1.0000						
	(0.0000)							
(3) MREG	0.0800	0.0519	1.0000					
	(0.0000)	(0.0013)						
(4) CSP	0.7289	0.5453	0.0982	1.0000				
	(0.0000)	(0.0000)	(0.0000)					
(5) SIZE	0.4169	0.4028	0.0586	0.4455	1.0000			
	(0.0000)	(0.0000)	(0.0003)	(0.0000)				
(6) ROA	-0.0698	-0.0745	-0.0135	-0.0641	-0.0858	1.0000		
	(0.0000)	(0.0000)	(0.4032)	(0.0001)	(0.0000)			
(7) LEV	0.0814	0.0911	-0.0212	0.0433	-0.0159	-0.2073	1.0000	
	(0.0000)	(0.0000)	(0.1884)	(0.0073)	(0.3257)	(0.0000)		
(8) TOBIN	-0.0898	-0.0875	0.0378	-0.0956	-0.1113	0.6729	-0.1200	1.0000
	(0.0000)	(0.0000)	(0.0193)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	

Panel B: Descriptive Statistics for Regression Variables

	Observations	***Mean***	***Std. Dev.***	***P25***	***Median***	***P75***
CSD	3,836	0.0000	0.9995	-0.7947	-0.0526	0.8011
VOL	3,836	1.2357	1.3143	0.0000	1.0000	3.0000
MREG	3,836	0.2318	0.4220	0.0000	0.0000	0.0000
CSP	3,836	0.0000	0.9995	-0.6412	0.2667	0.8229
SIZE	3,836	9.1768	1.8340	8.1709	9.2704	10.4588
ROA	3,836	4.9041	9.0164	0.8845	3.9356	7.6561
LEV	3,836	25.3414	19.1715	10.9049	23.8948	36.7431
TOBIN	3,836	1.6435	1.7626	1.0120	1.2511	1.7923

Table 4 reports correlation statistics (Panel A) and descriptive statistics (Panel B) for the variables used in the regression analysis. Statistics are presented for the full sample of 3,836 firm-year observations. Panel A reports bivariate Pearson correlation coefficients and p-values (in parentheses) for a two-tailed test of statistical significance.

Table 5: Results of Panel Regression Analyses

Panel A: Full Sample

	I	II	III	IV	V
Main Variables of Interest:					
VOL	0.5873***	0.5879***	0.6246***	0.3981***	0.1891***
	(12.9170)	(12.9655)	(12.7170)	(13.7398)	(6.2875)
MREG		0.1169***	0.2003***	0.1294***	0.0381
		(4.1105)	(4.4849)	(3.5757)	(1.3169)
VOLxMREG			-0.1498***	-0.0925***	-0.0688***
			(-3.2338)	(-3.1161)	(-3.4547)
Control Variables:					
CSP				0.4132***	0.1552***
				(19.4658)	(6.0809)
SIZE				0.0212*	0.0607**
				(1.9676)	(2.1640)
ROA				0.0002	-0.0013
				(0.1050)	(-1.4594)
LEV				0.0005	-0.0007
				(0.9131)	(-0.4262)
TOBIN				-0.0045	0.0047
				(-0.4675)	(1.4054)
Constant	-0.9255***	-0.9174***	-0.9715***	-0.7470***	-0.8435***
	(-17.6926)	(-16.6627)	(-14.0632)	(-5.2193)	(-3.3003)
YEAR FE	YES	YES	YES	YES	YES
COUNTRY FE	YES	YES	YES	YES	NO
FIRM FE	NO	NO	NO	NO	YES
Observations	3,836	3,836	3,836	3,836	3,836
Adjusted R-squared	0.5845	0.5849	0.5905	0.6974	0.1824

Panel B: Matched Sample

	I	II	III	IV	V
Main Variables of Interest:					
VOL	0.5331***	0.5335***	0.5679***	0.3826***	0.1650***
	(16.1889)	(16.2283)	(13.0245)	(11.0612)	(6.3397)
MREG		0.0746**	0.1243***	0.1023**	0.0053
		(2.8110)	(3.2963)	(2.5449)	(0.1368)
VOLxMREG			-0.0943**	-0.0701**	-0.0573***
			(-2.3062)	(-2.1373)	(-2.9459)
Control Variables:					
CSP				0.3897***	0.1875***
				(24.8469)	(8.6395)
SIZE				0.0230	0.0731
				(1.6778)	(1.3093)
ROA				-0.0002	-0.0009
				(-0.1130)	(-0.8136)
LEV				0.0002	-0.0001
				(0.3492)	(-0.0460)
TOBIN				-0.0062	0.0048
				(-0.6541)	(1.4515)
Constant	-0.7484***	-0.7414***	-0.7914***	-0.7112***	-0.9153*
	(-17.2578)	(-16.3505)	(-11.3656)	(-4.1839)	(-1.7756)
YEAR FE	YES	YES	YES	YES	YES

COUNTRY FE	YES	YES	YES	YES	NO
FIRM FE	NO	NO	NO	NO	YES
Observations	2,709	2,709	2,709	2,709	2,709
Adjusted R-squared	0.5459	0.5460	0.5491	0.6640	0.1790

This table presents the results of (panel) regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. If indicated, the regressions include year-, country-, or firm-fixed effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 6: Results of the Difference-in-Differences Analyses

	I	II	III	IV	V	VI
Main Variables of Interest:						
VOL	0.6473***	0.5340***		0.5284***	0.5096***	0.5007***
	(13.3697)	(9.3171)		(9.3319)	(8.6477)	(8.2015)
POST		0.0162	-0.0170	-0.0806	-0.0734	-0.0980
		(0.5432)	(-0.4668)	(-1.3661)	(-1.2716)	(-1.5036)
TREATED	0.6068***		0.0512	0.4578***	0.4607***	0.4092***
	(6.3490)		(0.7221)	(7.3557)	(6.5619)	(4.8547)
VOLxPOST		-0.0922***		-0.0706*	-0.0713*	-0.0519
		(-3.8884)		(-1.8091)	(-1.9070)	(-1.1182)
VOLxTREATED	-0.2120***			-0.2123***	-0.2147***	-0.1933***
	(-4.3797)			(-3.6293)	(-3.2001)	(-3.2079)
POSTxTREATED			0.0069	0.1117*	0.1075*	0.1272*
			(0.1903)	(1.9077)	(1.8891)	(1.9603)
VOLxPOSTxTREATED				0.0139	0.0117	-0.0045
				(0.3537)	(0.3065)	(-0.0956)
Control Variables:						
CSP			0.6004***	0.3459***	0.3491***	0.3634***
			(6.9870)	(13.7560)	(16.2306)	(10.3547)
SIZE			0.0345	0.0160	0.0191	0.0179
			(1.5484)	(0.8351)	(0.8635)	(0.8914)
ROA			0.0011	0.0039***	0.0058***	0.0026
			(0.5519)	(3.0153)	(3.6441)	(1.4293)
LEV			0.0012	0.0012	0.0011	0.0010
			(0.8683)	(1.2474)	(1.1005)	(0.9350)
TOBIN			-0.0011	-0.0144*	-0.0186**	-0.0105
			(-0.0983)	(-1.9984)	(-2.3346)	(-1.1643)
Constant	-0.9392***	-0.5261***	-0.5562*	-0.9493***	-0.9875***	-0.8974***
	(-10.1435)	(-4.5749)	(-2.1166)	(-4.3640)	(-3.6158)	(-3.8204)
YEAR FE	YES	YES	YES	YES	YES	YES
COUNTRY FE	NO	NO	NO	NO	YES	YES
INDUSTRY FE		NO	NO	NO	NO	YES
Observations	752	752	752	752	752	752
Adjusted R-squared	0.5261	0.4604	0.4651	0.6698	0.6835	0.6494

This table presents the results of multivariate regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. If indicated, the regressions include year-, country-, or firm-fixed effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 7: Results of Panel Regression Analyses including MESREG instead of MREG

Panel A: Full Sample

	I	II	III	IV	V
Main Variables of Interest:					
VOL	0.5873***	0.5879***	0.6233***	0.3956***	0.1896***
	(12.9170)	(12.9655)	(12.0778)	(12.9789)	(6.0971)
MESREG			0.1861***	0.1185***	0.0325
			(4.3606)	(3.6009)	(1.1780)
VOLxMESREG			-0.1249**	-0.0731**	-0.0595**
			(-2.3703)	(-2.1781)	(-2.5779)
Control Variables:					
CSP				0.4144***	0.1559***
				(19.2211)	(6.1007)
SIZE				0.0210*	0.0616**
				(1.9448)	(2.2040)
ROA				0.0002	-0.0013
				(0.1106)	(-1.4140)
LEV				0.0006	-0.0007
				(0.9923)	(-0.4424)
TOBIN				-0.0051	0.0046
				(-0.5623)	(1.3784)
Constant	-0.9255***	-0.9174***	-0.9693***	-0.7411***	-0.8477***
	(-17.6926)	(-16.6627)	(-13.4485)	(-5.1397)	(-3.3046)
YEAR FE	YES	YES	YES	YES	YES
COUNTRY FE	YES	YES	YES	YES	NO
FIRM FE	NO	NO	NO	NO	YES
Observations	3,836	3,836	3,836	3,836	3,836
Adjusted R-squared	0.5845	0.5849	0.5892	0.6967	0.1812

Panel B: Matched Sample

	I	II	III	IV	V
Main Variables of Interest:					
VOL	0.5519***	0.5526***	0.5997***	0.4060***	0.1527***
	(12.7035)	(12.7115)	(9.8083)	(8.3486)	(6.0243)
MESREG		0.1026**	0.1704***	0.1223**	0.0038
		(2.5365)	(2.9565)	(2.4492)	(0.0865)
VOLxMESREG			-0.1255**	-0.0948*	-0.0495*
			(-2.2422)	(-2.0767)	(-2.0255)
Control Variables:					
CSP				0.3889***	0.1603***
				(19.7562)	(6.5677)
SIZE				0.0283	0.1025
				(1.5580)	(1.3671)
ROA				0.0002	-0.0013
				(0.1116)	(-1.2989)
LEV				0.0010	0.0003
				(1.0858)	(0.1691)
TOBIN				-0.0039	0.0057*
				(-0.3328)	(1.8213)
Constant	-0.6672***	-0.6578***	-0.7298***	-0.7529**	-1.1778
	(-12.5152)	(-11.7141)	(-7.8706)	(-2.8348)	(-1.7105)
YEAR FE	YES	YES	YES	YES	YES

COUNTRY FE	YES	YES	YES	YES	NO
FIRM FE	NO	NO	NO	NO	YES
Observations	2,633	2,633	2,633	2,633	2,633
Adjusted R-squared	0.5332	0.5335	0.5390	0.6557	0.1586

This table presents the results of (panel) regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. If indicated, the regressions include year-, country-, or firm-fixed effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 8: Results of the Panel Regression Analyses for ES Disclosure and ES Performance

Panel A: Full Sample

	I	II	III	IV	V
Main Variables of Interest:					
VOL	8.9401***	8.9487***	9.5954***	6.5159***	2.7381***
	(13.1807)	(13.2151)	(12.9674)	(12.0983)	(5.6271)
MREG		1.2081**	2.6696***	2.0347***	0.5811
		(2.1918)	(3.5381)	(3.0952)	(1.0962)
VOLxMREG			-2.5902***	-1.7620**	-1.2188***
			(-3.1482)	(-2.5974)	(-4.0961)
Control Variables:					
ESP				0.2567***	0.1024***
				(15.8347)	(4.9877)
SIZE				0.1512	0.2664
				(0.7608)	(0.7199)
ROA				0.0015	-0.0268*
				(0.0486)	(-1.7975)
LEV				0.0119	0.0006
				(0.8616)	(0.0218)
TOBIN				-0.0064	-0.0661*
				(-0.0407)	(-1.8409)
Constant	20.6752***	20.7517***	19.6907***	3.0077	18.4257***
	(17.5025)	(17.0306)	(12.9414)	(0.7977)	(4.7200)
YEAR FE	YES	YES	YES	YES	YES
COUNTRY FE	YES	YES	YES	YES	NO
FIRM FE	NO	NO	NO	NO	YES
Observations	3,562	3,562	3,562	3,562	3,562
Adjusted R-squared	0.5678	0.5678	0.5741	0.6586	0.2134

Panel B: Matched Sample

	I	II	III	IV	V
Main Variables of Interest:					
VOL	6.0302***	6.0434***	6.6947***	4.6464***	1.3892***
	(14.8284)	(14.7114)	(13.6074)	(11.5509)	(4.3633)
MREG		1.4454**	2.4241**	2.3936***	0.0229
		(2.1735)	(2.8644)	(2.9913)	(0.0471)
VOLxMREG			-1.7432**	-1.4939**	-0.6049***
			(-2.7549)	(-2.8145)	(-2.9126)
Control Variables:					
ESP				0.2068***	0.0740***
				(12.0369)	(5.4137)
SIZE				0.1160	0.5949
				(0.6620)	(0.8363)
ROA				-0.0434	-0.0586**
				(-1.3610)	(-2.6975)
LEV				-0.0166*	-0.0424
				(-1.8416)	(-1.4349)
TOBIN				-0.1143	0.5234
				(-1.2666)	(0.9973)
Constant	18.5953***	18.7263***	17.7269***	4.6396***	12.4480*
	(38.6010)	(36.6524)	(17.7279)	(3.6264)	(1.7975)
YEAR FE	YES	YES	YES	YES	YES

COUNTRY FE	YES	YES	YES	YES	NO
FIRM FE	NO	NO	NO	NO	YES
Observations	2,434	2,434	2,434	2,434	2,434
Adjusted R-squared	0.3478	0.3480	0.3525	0.4260	0.1687

This table presents the results of the (panel) regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. If indicated, the regressions include year-, country-, or firm-fixed effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 9: Results of the Panel Regression Analyses by Country

VARIABLES	(I) Denmark	(II) France	(III) Norway	(IV) UK
Main Variables of Interest:				
VOL	0.4317***	0.3778***	0.3836**	0.3757***
	(8.1522)	(5.3633)	(2.8085)	(11.7995)
MReg	-0.0097	0.1835	0.7314***	0.4180***
	(-0.1071)	(1.4911)	(4.0183)	(5.8709)
VOLxMReg	-0.0064	-0.0938	-0.4137***	-0.1102**
	(-0.0919)	(-1.4304)	(-3.7890)	(-2.6700)
Control Variables:				
CSP	0.2595***	0.4346***	0.8200***	0.4179***
	(7.0661)	(15.1910)	(5.4173)	(13.2371)
SIZE	0.0810**	0.0625***	0.0664	0.0025
	(2.8237)	(3.9777)	(1.3056)	(0.4809)
ROA	-0.0047	-0.0040	-0.0115	0.0022***
	(-1.2577)	(-0.9473)	(-1.8032)	(3.1666)
LEV	0.0061***	-0.0011	0.0023	0.0009
	(3.7529)	(-1.3901)	(0.3246)	(1.0932)
TOBIN	0.0783***	0.0299	-0.1567	-0.0122*
	(5.0571)	(0.8178)	(-1.0959)	(-1.7745)
Constant	-1.7113***	-1.0843***	-1.1171*	-0.4303***
	(-6.6544)	(-5.3496)	(-1.9674)	(-5.1620)
YEAR FE	YES	YES	YES	YES
COUNTRY FE	NO	NO	NO	NO
FIRM FE	NO	NO	NO	NO
Observations	191	704	137	1,826
Adjusted R-squared	0.6996	0.5918	0.6859	0.6332

This table presents the results of the (panel) regressions for each country with mandatory regulations in place, estimated with robust standard errors. T-statistics are presented in parentheses. If indicated, the regressions include year-, country-, or firm-fixed effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Figure 1: The Model of Corporate Sustainability Disclosure

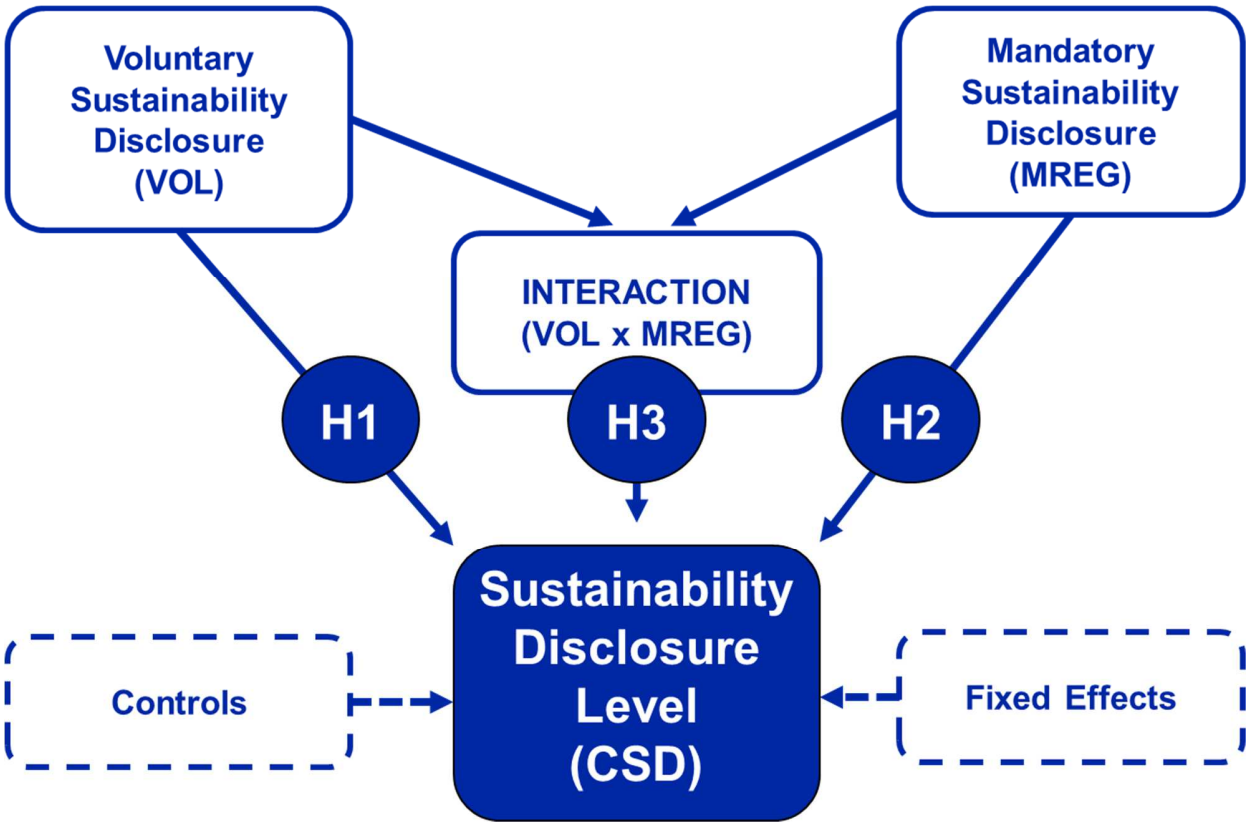
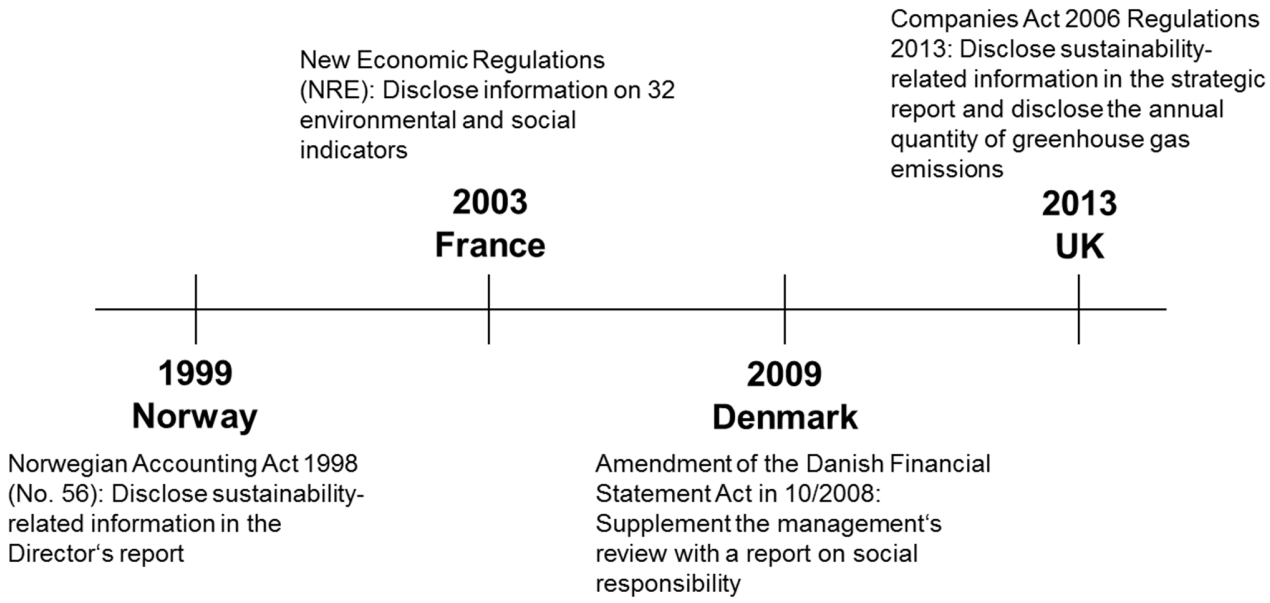


Figure 2: Mandatory Sustainability Disclosure Regulation in Europe



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The Determinants and Effects of ESG Banking Governance

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ABSTRACT

We construct an ESG (short for: environmental, social and governance) index for globally operating, large banks by using a dataset that consists of 270 banks domiciled in 50 different countries. While there is previous research on how ESG measures can be tested for companies in general, we provide the first effort to do so that is specifically tailored to the banking sector. We explain this index for individual banks by bank financial, banking sector, and country-specific variables. In line with existing shareholder and stakeholder theories, we are also interested in whether banks' ESG governance indices have explanatory power for their social and/or economic performance. Our results suggest a complex interplay of the banks' own financial characteristics, their country environments and their ESG governance scores. Banks' ESG governance scores can only be improved by policy measures if these are tailored to the banking industry of the country of domicile. Moreover, our data indicate that the banks' ESG governance scores are relevant for their social and economic performance, especially after the recent financial crisis. This finding indicates that shareholder and stakeholder demands may indeed be converging.

Keywords: ESG Governance, Bank Business Model, ESG policy, Financial Development; Large Multinational Banks

JEL Classification : E58; F36; G21; G38

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1. Introduction

There is one and only one social responsibility of business — to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud.

Capitalism and Freedom (Friedman, 1962: 133)

Friedman's (1962) argumentation for the primary purpose of business has often been regarded as a doctrine of profit maximization. At closer sight, however, it becomes clear that Friedman really established clear borders within which this profit orientation of businesses is justified – these are "open and free competition" and "without deception or fraud". If we narrow down our business focus to the financial intermediary business conducted by banks, we can follow the public revelation that many of the globally operating financial institutions have not been playing "within the rules of the game": they had and still have to pay high prices for legal misconduct, cartelization and misleading their own customers. At the same time, the rules of the game have increased in today's society, with climate change and social inequality being on top of the list of global policy-makers as well as industry leaders.

The financial industry – because of its intermediary role for the real economy – is thereby often the industry most focused on. Many regulators, economists, and bank managers agree that environmental, social and governance (ESG) factors need to be integrated into the strategic and operational assessments of financial companies. They suppose that environmental and social issues, and especially a disorderly market response to them, represent a material threat to banking stability (Alexander, 2014). While many banks have been publishing sustainability reports, addressing and disclosing environmental, social and governance risks (see e.g. Hummel and Festl-Pell, 2015), as of 2015, a majority of them does not take systemic risks from structural changes into consideration, but merely concentrates on managing the addressed issues on an operational risk level (Alexander, 2014; KPMG and WWF, 2015). At the same time, many large banks run on business models that are at least partly disconnected from the fundamental intermediary role of banks as the financiers of the real sector. Furthermore, it seems that there are still too many bank credits that go to private consumers as opposed to corporations. Moreover, short-term trading securities, some of them disentangled from the real sector's business cycle, still contribute too much to the overall fee-generating business of global banks. Both the neglect of the systemic

externalities of their business conduct as well as the volatile and short-term business models of banks give rise to potential regulatory intervention.

Upon request of the G-20 finance ministers and central bank governors, the Task Force on Climate-related Financial Disclosure (TCFD), chaired by Michael Bloomberg, has been set up to make sector-specific risks of environmental change explicit, with the financial industry as one of the sectors investigated.[1] At the December 2015 U.N. Climate Change Conference in Paris, the largest U.S. financial institutions published a joint statement in which they announced their willingness to contribute to general prosperity and growth (Joint Statement, 2015). The Nobel Prize winning economist Joseph Stiglitz also underscored the need for accounting for ESG factors in a talk at the University of Zurich in early 2016. He emphasized that especially environmental issues will have a huge impact on the global economy and that incorporating these issues into banks' business models is more needed than ever. Last but not least, also leaders in the finance industry call for the integration of ESG factors. A notable example is the plea of the world's largest investor, BlackRock Chairman and CEO Laurence D. Fink, for companies to focus in their earnings reports on the long-term impact of their business decisions. Thereby he singles out ESG factors and admonishes companies to realize that these factors are core to their business success (Fink, 2016).

However, the consensus that companies need to integrate ESG factors into their business models is as of today neither followed by suggestions for how to do that nor by suggestions on how to monitor the effectiveness of its enforcement. Therefore, the main goal of this paper is to contribute to the development of an index for measuring environmental, social, and governance issues. As this research is today pertinent to the world of finance and as, at the same time, there is only little research on how ESG connects to banks in particular, the paper at hand focuses on globally operating, large banks. Thereby the paper intends to gain insight into the factors that influence banks' ESG scores. Furthermore, the paper inquires whether banks' ESG scores have explanatory power for the performance of banks. In order to do so, we rely on a dataset that consists of 270 large, globally operating banks which are domiciled in 50 different countries. The data provide

[1] The task force released its first report on March 31, 2016, setting out fundamental principles for effective disclosures, and is currently preparing a report specifically focused on how companies can and should disclose the financial impact of climate change (FSB, 2016).

information on ESG measures as well as on general performance measures of these banks in the period from 2005 to 2014.

The remainder of the paper is structured as follows. The following section reviews the theoretical background of the paper. Subsequently, we provide a literature review and develop the hypotheses on the determinants and effects of the ESG Banking Governance Index. The section thereafter presents our research design. This is followed by a section on the empirical results of our paper. The final section concludes the paper.

2. Theoretical Background: Convergence of Public Policy and Market Policy

There is a long-standing debate over whether the primary goal of companies is to maximize the benefits of shareholders only, or the benefits of all stakeholders. However, recent research suggests that shareholder- and stakeholder-maximization do not need to be mutually exclusive and that, quite the opposite, the two can be mutually enforcing. Especially in the long term, the relationship between stakeholders and shareholders can be conceptualized as "a mutually reinforcing, interactive network" the total of which needs to be maximized (Freeman et al., 2010, p. 132; see also Post, Preston and Sachs, 2002). This development gathers momentum with the ever-growing attention to ecological issues – climate change, in particular – and how these issues affect business. Environmental concerns, which is one of three factors of the Environmental, Social, and Governance Index for the banking sector developed in this paper, provide a fitting example for demonstrating that latest research on the relation of shareholders and stakeholders increasingly reaches the conclusion that the interests of both groups can and do, indeed, often overlap. We will, first, indicate that public policy, which is traditionally related to stakeholder demands, converges to the shareholder perspective. Second, we demonstrate that, at the same time, market policy, which is traditionally connected to shareholder demands, converges to the stakeholder perspective.

2.1 Public Policy and Stakeholders

Marc Carney, the governor of the Bank of England, points out that there is a clash between the time horizon of banks which he calls "relatively short" and the time horizons which underlie "the real challenges to prosperity and economic resilience from climate change"; he speaks of "a tragedy of horizons" (Carney quoted in The UNEP Inquiry Report, 2015, p. 21; see for similar statements: Weber, 2016). That the incentives that drive the banking sector can, under certain circumstances, run counter to ensuring the long-term stability of the banking system is another familiar point (Evans-Pritchard, 2015). But, at the same time, there is increasing awareness of the fact that the major global challenges cannot be met without, let alone against the interests of the financial sector.

The financial crisis and the tightening of capital requirements that it amounted to led to worries that environmental concerns would be among the first casualties. The argument was that due to the capital intensiveness of most investments into renewable energy, environmental issues are prone to suffer when investment capital becomes tight. This also prompted the discussion whether

environmental risks should be included into the Basel III Accords (see e.g. Alexander 2014). Such an inclusion could, for example, allow for capital requirements on bank loans to be applied flexibly when existing guidelines conflict with crucial challenges on the wider society. In the wake of the financial crisis, the European Union has, for instance, discussed whether it should concede additional flexibility regarding the capital requirements on banks to free additional capital for bank lending to small and medium enterprises (European Banking Authority, 2015).

Furthermore, in many countries governments have encouraged its central banks to become driving forces of environmental policies. This phenomenon not only embraces developed countries such as the Netherlands and the UK, but also developing countries as well as the BRIC countries. The Central Bank of Brazil was, already in 2011, the first regulator of a banking sector that utilized the discretion that Pillar 2 of Basel II and III concedes by asking banks to test whether or not environmental risk factors can serve as proxies for credit and market risks. Also, under the same discretion, the Central Bank has asked banks to take into account environmental governance aspects as part of the bank's broader corporate governance policies. (Center for Sustainability Studies at Getulio Varga, 2014).[2] Moreover, the People's Bank of China, China's central bank, has issued green credit guidelines which are supposed to foster responsible lending practices with all banks domiciled in the country (China Green Finance Taskforce, 2015). Also the Central Bank of Kenya has hit the headlines with its M-KOPA program that supports solar energy in rural areas (Frangoul, 2015).

The most ambitious program of relying on the central bank as a driver of ESG-factors, however, comes from public policy-makers in Bangladesh. The government of Bangladesh tries to develop the country by improving the inclusion of its financial industry as well as the environmental sustainability of the energy sector. To make that happen the country's central bank has launched programs that lead the countries' banks to give out significantly more loans to the rural economy and provide access to finance for sustainable projects. It does that, on the one hand, with incentives, such as providing lower rates of refinancing if a bank supports the rural economy with credits. On the other hand, it enforces requirements on banks to direct a minimum proportion of their loans to green projects such as projects related to renewable energy and energy efficiency (Rahman, 2013). Atiur Rahman, the governor of the Central Bank of Bangladesh argues that a positive relation

[2] We thank Kern Alexander for clarifications on this point.

exists between so called ‘green finance’ and stable economic growth. He, therefore, demands that such financing should leave “the sidelines” and move to “the mainstream of global financial flows” (Rahman, 2015). Such a shift cannot be elicited without the banking sector.

2.2 Market Policy and Shareholders

Recent developments demonstrate that investing sustainably, especially with regards to ecological issues, may no longer be a demand that needs to be imposed on the financial sector by external forces. The sustainability report of Weil, Gotshal & Manges LLP reports that “more than 1,300 institutional investors worldwide, representing $59 trillion in assets under management have signed on to the U.N. Principles of Responsible Investing, which seek to integrate sustainability concerns into investment objectives. Some of the largest pension plans, endowments, and other institutional investors are also becoming vocal advocates for sustainable investing and reporting”. (2016, p. 2). In addition, the report notes that large institutional investors, in particular, also frame their “guidelines for sustainable investing” (ibid.). In February 2016, Lawrence D. Fink, BlackRock’s Chairman and CEO, as well announced that BlackRock from now on takes sustainability criteria into account when making investment decisions.

These developments also have an impact on rating agencies. Rating agencies have by now included sustainability parameters into their assessment of companies as well as of countries. Standard & Poor’s, one of the so called ‘Big Three’ credit-rating agencies provides a case in point. Reacting to demands from its clients, the rating agency started to compose regular reports on climate change in which it stresses that climate change has become a “global mega-trend” which the financial sector must reckon with (2014, p. 3). Standard & Poor’s takes environmental issues of companies into account and expects that events related to climate change will, sooner or later, significantly influence even their ratings of countries (Nichols, 2014).

Stock exchanges are yet another influential player in the drive to increase publicly relevant information regarding environmental issues, climate change in particular (Cleary, 2015). Brazil’s BOVESPA stock exchange was among the first that adopted a commitment to having companies report such information. It linked “requirements on reporting and substantive performance with access to capital-raising opportunities” (The UNEP Inquiry Report, 2015, p. 21). The Johannesburg Stock Exchange implemented similar requirements (ibid.). The efforts of 51 different stock exchanges from around the world to push sustainability criteria to the forefront of

investment decisions have by now been brought under the umbrella of the ‘Sustainable Stock Exchanges Initiative’ which is a project of the United Nations. The initiative crafts guidelines which are used by the stock exchanges as a blueprint for helping publicly traded companies meet the demands of investors regarding access to a company’s sustainability performance (Sustainable Stock Exchanges Initiative, 2014).

There are, hence, manifold movements from within many corners of the financial world to take ESG-factors into account. Thereby, most of the players concerned consider their own efforts as complementing, sometimes even as amending and bringing forward the efforts of public policy-makers.

3. Literature Review and Hypothesis Development

3.1 Influence of Bank's Financial Characteristics on ESG Banking Governance

Some scholars argue that companies that score high on ESG-indices and are successful in spreading this information, profit from lower costs of refinancing. The reason is that there are capital providers on the market that appreciate high ratings in ESG dimensions. These are often called 'socially responsible investors'. Combined with the regular capital that is equally available to all market participants that demand capital these investors increase the supply of capital for the companies with higher ESG. This, in turn, results in lower costs of capital for companies with a high ESG-score. Haigh and Hazelton (2004) provide an assessment of the strengths and weaknesses of this argument (see also Garriga and Melé, 2004).

Another business case for ESG involves what came to be called, based on the title of a popular 2005-article in *The Economist*, the "Doing-Well-by-Doing-Good" argument. This argument makes the case that a company with a reputation of acting socially responsible creates benevolence on the side of investors, employees, consumers, and other parties of interest to companies. This will ultimately translate into financial advantages for the company in question. For support of this line of reasoning see, for example, Becker (1974), Andreoni (1989) and Besley and Ghatak (2005). Heal (2005) as well as Benabou and Tirole (2010) provide a neutral analysis of this argument. Margolis, Elfenbein and Walsh (2007) tested the argument in a meta-analysis of more than 150 papers on this topic and only found meagre support for the thesis. For the paper at hand, the Doing-Well-by-Doing-Good thesis suggests that there is a positive relation between a bank's financial sustainability, as for example measured by its capital reserve, and a bank's ESG performance. So the supposition is that banks that are financially more sustainable, i.e. run on a more cautious business model, are, at the same time, the ones that score higher in ESG. The reinforcing effect of the interaction between banks' financial characteristics and their sustainability governance is summarized by the following hypothesis:

H1a: There is a positive relationship between banks' financial characteristics and their sustainability governance.

Friedman (1970) made the argument that it is not legitimate for the agents of a public company to use their principals' money for non-profit concerns. If this was legitimate, managers would be free to exploit corporate cash to advance their personal desires or even to increase their personal reputation among people they deem important to their private advancement (see Tirole, 2001 for a discussion on the relation of philanthropy and corporate governance). In an oft-cited 1989-article, Jensen argued that profit motives in itself include taking issues into account that are today subsumed under the acronym ESG. He argued that a "shareholder-driven company" must invest in all measures that are of interest to stakeholders as long as "the additional benefits" of these investments "exceed the additional cost" (1989, p. 186).

In line with these arguments, banks which opt for a riskier business model could score higher in ESG dimensions. The rationale is that such banks consciously take on more risk in order to increase profit, and this decision for a higher position on the risk-profit plane makes it rational for them to invest significantly more in risk management. Hence, companies that have high risk and therefore higher incentives to invest in risk management should perform better with regards to their ESG governance. If this line of reasoning proves correct, risky banks outperform secure banks in ESG-indices. We formally state this substitutive relationship by the following hypothesis:
H1b: There is a negative relationship between banks' financial characteristics and their sustainability governance.

3.2 Influence of Country Environment Score on ESG Banking Governance

Many economists agree that, even in a world as globalized as the world today, the country of domicile, influences bank strategies on issues like ESG (see for a general discussion Guiso, Sapienza and Zingales, 2002). Papers by Ball, Robin and Wu (2003) and Bushman and Piotroski (2006) suggest that the implications of the banking sector rely on broader national characteristics. Demirgüç-Kunt, Laeven and Levine's (2004) research makes the case that the physiognomy of a country's banking sector becomes insignificant when controlled for national indicators, such as economic freedom or property rights protection.

On the other hand, there is evidence indicating that the characteristics of the banking sector can trigger effects on bank behavior which are independent of wider national characteristics. Barth, Caprio Jr. and Levine (2004) provide evidence for a causal relationship of this kind. They show

this based on a number of different characteristics which are peculiar to the banking sector, e.g. regulations on domestic and foreign banks' market entry, loan classification habits and other characteristics.

Regarding the national economy score, the most pertinent issue in the literature is whether the bank is domiciled in a developed or in a developing country. Inquiring into this issue Doidge, Karolyi and Stulz (2007) focus on corporate governance. Thereby they suppose that firms which are domiciled in less developed countries are less motivated to advance their governance mechanisms as they have less access to capital markets. Thus, companies from such countries should score lower in our ESG-score.

The differentiation we draw within the dimension of our country environment score – i.e. into a banking sector score and a national economy score – as well as the different lines of reasoning within both of these realms prompt us to test the following four hypotheses:

H2a: There is a positive relationship between the banking sector score and sustainability governance.

H2b: There is a negative relationship between the banking sector score and sustainability governance.

H2c: There is a positive relationship between the national economy score and sustainability governance.

H2d: There is a negative relationship between the national economy score and sustainability governance.

3.3 Interaction Effect of Bank Financials and Country Environment on ESG Banking Governance

Beatty and Liao point out that the majority of studies treats the country environment of firms as a variable which is exogenous to bank characteristics. But it could well be the case that the characteristics of bank governance and the country environment are endogenously related (2014, p. 371). Beatty and Liao expound that the lacuna in the research on the endogeneity-issue is

especially pertinent when it comes to the banking sector: “Compared to non-banking industries, we know relatively little about how banks’ corporate governance interacts with regulation in shaping financial reporting and disclosure quality” (2014, p. 370).

Evidence for the supposition that countries have an influence on bank characteristics is provided by papers that focus on the different effects on banks in developing versus in developed countries. John and Kedia (2003, 2004) inquire into the impacts of the development of the national economy on banks’ decision-making when they focus on a country’s technological quality of monitoring and how it affects the choice of governance mechanisms. They find that national economies are unable to provide the expertise necessary so that banks get their public reporting externally verified. Such a country environment has a negative impact on a bank’s costs of refinancing and therefore imposes restrictions to good governance (see Ball 2001 as well as Black 2001). Doidge, Karolyi and Stulz (2007) contribute to this research by presenting evidence that banks which are governed well, and should hence have advantages in terms of access to capital markets, can barely profit from their good governance if domiciled in a country with a bad national-economy-score. In these cases, the good governance on the micro-level of the bank is outweighed by the negative impacts on the macro-level of its home-country.

The difference between developed and developing countries and how this difference interacts with bank characteristics is of special pertinence to measuring ESG variables. The reason is that in developing countries regulation policies for advancing an industry’s attention to ESG factors are often accompanied by differences regarding the policy-goals underlying ESG factors. In this regard, Monnin and Barkawi (2015) point out that in many developing countries green finance initiatives are often not initiated in their own right, but as vehicles to advance other policy priorities of the country. The authors determine that green finance initiatives, in particular, are often supported as part of a larger national program to reduce poverty, to develop rural parts of the economy, and/or to deal with issues of public health and basic sanitation, and these effects, not the protection of the environment, is the true reason for the implementation of green finance in developing countries.

At the same time, there are studies that show that a high environmental score does not translate into good banking governance. Ball, Robin and Wu (2003) measured the effects of comparatively well-crafted regulations of the banking sector in the East Asian countries Hong Kong, Malaysia,

Singapore and Thailand. Their research indicates that these regulations do not have the desired effects in the face of managers and auditors that lack adequate incentives to comply with these regulations. A recent study by Christensen et al. (2016) underscores this finding. These findings complement research which is interested in the culture of managers as a driver of bank behavior (see for example Cohn, Fehr and Marechal 2014, 2015).

The paper at hand tries to contribute to filling this lacuna. We test whether our findings on the influence of bank characteristics on ESG scores hold when interacting with either of the two dimensions of our banking environment score and vice versa. In other words, we inquire whether an interaction effect on ESG scores exists between the characteristics of individual banks and the level of development of the individual banks' country of domicile with respect to the specificities of the country's banking sector and with respect to the country's national economy score, respectively. This yields the following four hypotheses:

H3a: There is a positive relationship between the interaction of banks' financial characteristics and its banking sector score and the bank's respective sustainability governance.

H3b: There is a negative relationship between the interaction of banks' financial characteristics and its banking sector score and the bank's respective sustainability governance.

H3c: There is a positive relationship between the interaction of banks' financial characteristics and its national economy score and the bank's respective sustainability governance.

H3d: There is a negative relationship between the interaction of banks' financial characteristics and its national economy score and the bank's respective sustainability governance.

3.4 Social Impact of ESG Banking Governance

A study by Paul and Siegel (2006) shows that the public reputation of companies is influenced by a company's commitment to issues related to ESG. Financial data providers like Bloomberg and Thomson Reuters publish sustainability parameters which, among other things, are used to forecast the overall quality of financial products and institutions. Bloomberg reports that customer usage

of its ESG company reports has almost ten-folded from 2009 to 2015 and speaks of an "increasing mainstreaming of ESG data usage" (Bloomberg L.P., 2015).

Barnett, Jermier and Lafferty (2006) have conducted a literature review and found that the scientific discourse on the importance of the reputation of companies has risen steadily since 1981. At the same time the financial crisis which started in 2007 has led to an unprecedented spark in paying attention to company's reputation (Eisenegger and Künstle 2011; see also Carney 2013). The literature on this issue states that the market power and the willingness to change the banking business culture has not been strong in the run up to the global financial crisis, however has increased significantly after the crisis. Therefore, our dataset distinguishes between pre-crisis, during-crisis, and post-crisis times when measuring whether the ESG score of a bank has an impact on the bank's reputation risk. In general, we expect banks with a high ESG score to achieve higher public recognition for its ESG investments as well as lower reputational risk, compared to banks with a low ESG score. Furthermore, we suppose that this relationship is especially strong in post-crisis times. This reasoning is formally stated by the following hypothesis:

H4a: There is no relationship between banks' ESG Governance Index and their ESG-Awards or their Reputational Risk for the years 2005-2009. This relationship turns positive for ESG-Awards and negative for Reputational Risk in the years 2010-2014.

Gillet, Hübner and Plunus (2010) studied the social effects of companies' misconduct in governance issues. They are interested in the reputational risks implied in company misconduct that leads to a public scandal. They rely on 154 events as listed in the FIRST database of OpVantage in the time horizon 1990 to 2004. The events are related to companies in the financial sector that are listed on a major European or U.S. Stock Exchange. The authors disentangled operational losses from reputational damage by examining stock market reactions to the announcement of operational losses and tested for whether this announcement was accompanied by allegations of internal fraud. The results show significant abnormal returns at the announcement date of the loss, along with an increase in the volumes of trade when fraud was involved. As the results indicate that the losses in market value were significantly higher than the operational loss amount that was announced in the cases where fraud played a role, Gillet, Hübner and Plunus conclude that financial companies were penalized by the market also with a loss in reputation.

Thereby, the negative impact was proportionally greater when the loss amount represented a larger share in the financial company's net profit. Although cases where fraud is involved are extreme, Gillet, Hübner and Plunus's 2010-study demonstrates that governance issues have the potential to affect a financial company's reputational risk, both in the short- and the long-run (see as a follow-up study by the same authors Gillet, Hübner and Plunus 2012). This reasoning is formally stated in hypothesis H4b.

H4b: There is no relationship between banks' ESG Governance Index and their ESG-Awards or their Reputational Risk, respectively, both in the short-term (after one year) or in the long-term (after three years).

3.5 Economic Impact of ESG Banking Governance

If the whole banking industry is in distress, corrective actions on single banks can exacerbate the crisis due to the tight interrelations between the different banks in the industry (see e.g. Aebi, Sabato, and Schmid, 2012). Therefore, it is important to distinguish the overall states of the banking industry. The same argument applies to ESG issues since, just as is true for risk issues, also the lowering of social, governance, and environmental performance (as measured in ESG-scores) can be caused by global factors. This is visible in climate change, or by an individual bank's bad decisions, such as accumulating a too high exposure in industries which suffer from global warming. Therefore, we test the following hypothesis with regards to economic effects of a bank's ESG governance in crisis and non-crisis times:

H5a: There is no relationship between banks' ESG Governance Index and their Financial Performance variables or their Business Risk variables for the years 2005-2009. This relationship turns positive for Financial Performance variables and negative for Business Risk variables in the years 2010-2014.

Whether measures such as ESG scores have explanatory power for a company's economic success in the short- or long-term, is as well a contested issue in the literature. The results have been contradictory (see for three different results, for example, McWilliams and Siegel 2000, Margolis and Elfenbein, 2008 as well as Wright and Ferris 1997). Gramlich and Finster (2013) investigated

whether a company's corporate sustainability as measured by the company's inclusion in sustainability indices and the number of years included explains the company's risk. The authors argue that the level of sustainability is likely to have a long-term impact on the dimension of risk. However, their findings which are based on 167 European companies do not provide clear evidence for the supposed relation. On the other hand, Jo and Na's (2012) study, which focuses on companies in what the authors refer to as controversial industry sectors (especially alcohol, tobacco, and gambling), finds such a risk-reducing relation, both in the short- and the long-term. Due to prior studies' contradictory findings with regards to short- and long-term economic effects of ESG investments, we formally state the following hypothesis:

H5b: There is no relationship between banks' ESG Governance Index and Financial Performance variables or their Business Risk variables, respectively, both in the short-term (after one year) or in the long-term (after three years).

A graphical depiction of the full model of determinants and effects of the ESG Banking Governance Index is provided in Figure 1:

Insert Figure 1 about here

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4. Research Design

4.1 Measurement of ESG Banking Governance Index

With the ESG-BGI (short for: Environmental, Social and Governance Banking-Governance-Index), we intend to create a measure for assessing a financial institution's investment into environmental, social and governance issues. The ESG-BGI is the aggregated score of three individual indices: the ESG structure score, the ESG reporting score, and the ESG business activities score. Each of these three scores relies on Thomson Reuter's ASSET4 database. The highest possible ESG score is 22 which results from the fact that ESG-BGI's sub-scores consist of 22 different binary-coded dimensions. The answer 'yes' yields '1'. The answer 'no' yields '0'. As is elaborated by Barth, Caprio Jr. and Levine (2004), we use this method which assigns equal weight to all the dimensions the score is composed of, because this increases the transparency

about changes in the response rate of the index when one or more of the dimensions need to be left out.

Table 1 displays the composition of the ESG structure score as the first sub-score the ESG-BGI is composed of. This score comprises nine different dimensions.

Insert Table 1 about here

Table 2 displays the composition of the ESG reporting score as the second sub-score the ESG-BGI is composed of. This score comprises six different dimensions.

Insert Table 2 about here

Table 3 displays the composition of the ESG business activities score as the third sub-score the ESG-BGI is composed of. This score comprises seven different dimensions.

Insert Table 3 about here

4.2 Measurement of Bank Financial Characteristics

The Bank Financial Characteristics Score (BF score) measures a bank's core business financials in relation to its competitors. The BF score is a sum index which is built by taking above and below mean values of twelve measures. Six of the measures are proxies for asset and capital quality. Six are proxies for business risk. If 'Above Mean' indicates good bank financial quality, all banks whose financial ratio lies above the mean of all banks in the sample, score "1", all others score "0". If, on the other hand, 'Below Mean' indicates good bank financial quality, all banks whose financial ratio lies below the mean of all banks in the sample, score "1", all others score "0". We follow Ellul and Yeramilli (2013) in the inclusion of the single dimensions, especially past annual returns and the various balance sheet variables. All data used for this score are retrieved from Bloomberg.

Table 4 lists the twelve dimensions of the Bank Financial Characteristics. The first six dimensions are proxies for asset and capital quality. The other six dimensions are proxies for business risk.

Insert Table 4 about here

4.3 Measurement of Country Environment Score

With the Country Environment Score we are interested in the general conditions a country is able to provide for the banks that are domiciled in it. In taking up country-specific variables, we rely on Guiso, Sapienza and Zingales's (2002) argument that for the near future single countries will continue to have an influence on companies in general. We employ two different proxies for the country environment score – a banking sector score or a national economy score. The majority of sources for the dimensions of these two scores are retrieved from the International Monetary Fund when it comes to the banking sector score and from the World Bank when it comes to the national economy score.

Table 5 depicts the banking sector score. It compares countries with regards to the specificities of their banking sector. The banking sector score is a sum index built by taking above mean values of six different measures. In choosing the dimensions we follow the IMF's Financial Access Survey and the IMF's Financial Soundness Indicators. We thereby retrieve six dimensions.

Insert Table 5 about here

Table 6 provides an overview of the national economy score. This score provides evidence for a country's economic development in comparison to other countries. The national economy score is a sum index consisting of six above mean values and one below mean value.

Insert Table 6 about here

4.4 Measurement of Social and Economic Performance and Risk

With regards to bank performance we differentiate between social and economic performance. Both of these dimensions are complemented with a risk measure. This yields two different panels.

Panel A of table 7 shows measures for social performance and risk. Data is derived from the Thomson Reuter's ASSET4 database. The dimension to measure social performance is whether the company has received an award for its social, ethical, community, or environmental activities or performance. The dimension for measuring risk in the Panel A is provided by the bank's answer to the question whether it has been part of media controversy with regards to bribery, corruption, political contributions, improper lobbying, money laundering, parallel imports or any tax fraud.

Panel B of table 7 displays the economic performance and risk measure. Economic performance data are retrieved from Bloomberg and are measured in two different dimensions. The first relies on return on assets (ROA) and, hence, the profit earned by a bank through the use of all its capital. The second uses return on equity (ROE) and, hence, how much value the bank created with the investment of shareholder's money. Data for the risk dimensions are retrieved from BankScope and also measured in two different dimensions. The first relies on the variance in total business volume and, therefore, on the yearly change in total on-plus off-balance sheet assets. The second uses the bank's impaired loan ratio.

Insert Table 7 about here

4.5 Sample Selection and Description

Our dataset consists of 270 banks which are domiciled in 50 different countries. The chosen banks are a result of data accessibility. These 270 banks are the ones that have been included in the Thomson Reuters ASSET4 database over the whole time horizon (from 2005 to 2014) and that have provided answers to the queries relating to ESG factors (see for the particular queries Tables 1 to 3). All banks in the panel are large, globally operating banks[3]. As we only deal with a subset of all banks, namely globally operating, large banks, our results may not be applicable for findings

[3] Size is measured in terms of the book value of the banks' assets, with total assets varying from USD 2,071 million at the lower end to over USD 3.3 trillion at the higher end.

on the banking industry as a whole. However, our focus on this kind of banks improves the comparability of banks in our dataset. This is also the case since the banks in our sample comply with international accounting standards and tend to receive regular media coverage. For these reasons, it is less likely that our results are biased by accounting or public negligence differences of the banks investigated (see for the advantages of such an approach Laeven and Levine (2009)). The homogeneity of banks in our sample is, however, limited by the fact that the banks rely on different business model specializations.

The time horizon of our study is given by the period of 2005 to 2014. The starting year of the time horizon of our sample, 2005, is mostly caused by the fact that Thomson Reuters ASSET4 database has been launched in 2004. Hence, it yields the first full measures for the year 2005. However, it is crucial for our study that the time horizon we employ allows us to compare the data with regards to the global financial crisis which started in 2007. For reasons we lay down in sections 3.4 and 3.5 we find it sensible to differentiate between pre-crisis, during-crisis, and post-crisis times. With its start in 2005 the time horizon that we employ allows for this differentiation.

5. Empirical Results

5.1 Descriptive Statistics and Correlations

Insert Table 8 about here

Table 8 presents summary statistics for the key social and economic performance and risk variables, the individual bank financials, and the country environment scores for the banks in our panel data set. The panel data comprise one observation for each bank-year combination. The summary statistics on the ESG Banking Governance Index (ESG BGI) indicate that our index is highly skewed to the right and has light tails. Hence, there are very few banks which reach high index values. This is also confirmed by the trend analysis of the mean values of the ESG-Governance Index (Figure 2). The mean values display a gradual improvement of all the ESG-Governance components over time, however mean values stay far below the maximum of 22 for the ESG BGI in all years.

Insert Figure 2 about here

We find that the sampled banks' Bank Financial Score has a mean value of more than 6.7 out of a maximum of 11 for all bank-year observations and a relatively low standard deviation of 1.76. On average, the Banking Sector Score is 2.05 out of a maximum of 5 for all bank-year observations. However, the standard deviation for the Banking Sector Score is high at more than 1.12, indicating a high variety of the sampled countries' banking sector development. The second Country Environment variable, the National Economy Score, paints a similar picture, with a mean value of 2.90 and a standard deviation of 1.25 and a maximum value of 5.

The size distribution of the sampled banks, in terms of the book value of their assets, is highly skewed with total assets varying from USD 2,071 million at the lower end to over USD 3.3 trillion at the higher end. Due to the skewness of the size distribution of the sampled banks, we use the logarithm of the book value of assets, denoted Size, as a proxy for the banks' size in all our empirical specifications.

In Table 9, we present the pair-wise correlations between the social and economic performance and risk measures of ESG effectiveness, the ESG Banking Governance Index and its bank financial and country environment determinants. We use an asterisk (*) to denote statistical significance at the 10% level.

Insert Table 9 about here

The ESG Banking Governance Index is positively correlated with the ESG-Award, which is consistent with the idea that banks with a high ESG banking governance get rewarded by the public. However, the univariate correlation between the ESG Banking Governance Index and Reputational Risk is also significantly positive. This might be a sign for higher public scrutiny of banks which invest in ESG banking governance. From the economic perspective, the business risk variable, Variation in Business Volume, is significantly negatively correlated with the ESG Banking Governance Index, however the second business risk variable, Impaired Loan Ratio, is significantly positive correlated with the index. This might be a first indication that the index captures overall market risk better than just the credit risk as measured by the Impaired Loan Ratio. At the same time, the ESG Banking Governance Index is negatively correlated with Return on Assets and not correlated with the Return on Equity measure. We must caution here, however, that this correlation is not taking into consideration any time periods which are longer than one year.

The Bank Financial Score's correlations with the social and economic performance and risk measures are in all single cases the exact opposite from the ESG Banking Governance Index's correlations with those measures, which is also displayed in the significantly negative correlation between the Bank Financial Score and the ESG Banking Governance Index. This suggests that those banks with less sustainable bank financials have higher ESG Banking Governance Indices. We must caution, however, against over-interpreting the results from Table 9, as this table simply lists pair-wise correlations that do not control for the impact of the bank's country environment.

5.2 Univariate Tests

Table 10 presents a univariate comparison of bank characteristics between banks with high ESG Banking Governance Indices versus those with low ESG Banking Governance Indices. We define the dummy variable High ESG BGI to identify, in each year, banks whose ESG Banking Governance score is greater than the median value of ESG Banking Governance across all banks during the year. High ESG = 1 identifies banks with a high ESG Banking Governance score, whereas High ESG = 0 identifies banks with a low ESG Banking Governance score. We use ***, **, and * to denote statistical significance at the 1%, 5%, and 10% levels, respectively.

We then run a univariate comparison of the mean values of various bank financial and country environment characteristics between the two subsamples identified by High ESG BGI = 0 and High ESG BGI = 1. To obtain a first impression of the potential differences between banks with a HIGH ESG Banking Governance score and banks with a LOW ESG Banking Governance score, we compare the social and economic performance and risk measures of ESG effectiveness and the bank financial and country environment determinants between these two groups of banks. The results are reported in Table 10.

Insert Table 10 about here

In terms of social performance and risk, we find that banks with high ESG BGI both have a higher probability to receive an ESG-Award and to come under scrutiny for reputational risk. The univariate comparison also displays that banks with a low ESG BGI have higher return on assets. However, banks with a high ESG BGI have higher return on equity measures. In terms of financial risk, banks with high and those with low ESG BGI do not differ significantly in their Variations in Business Volume as well as in their credit risk, as measured by the Impaired Loan Ratio.

Banks with low ESG BGI have a higher Bank Financial Score, indicating that it is the financially less sustainable banks which actually achieve higher ESG Banking Governance. Same as Ellul and Yerramilli (2013) with regards to their risk management index, we also find that banks with high ESG Banking Governance scores are larger in size.

In terms of the banks' country environment, we find that banks with low ESG BGI have higher national economy scores, hinting towards prior research's claims that it is the banks domiciled in

developing countries which invest more in ESG Governance. When looking at the banking sector, this relation changes as banks domiciled in countries with a more developed banking sector have higher ESG Governance scores.

However, to deduce some conclusive evidence with respect to the effect of ESG-Governance on the banks' social and economic performance, we have to rely on multivariate analyses as many of the key explanatory variables are correlated with each other as well as with the banks' performance and risk measures.

5.3 Multivariate Tests

5.3.1 Determinants of ESG Banking Governance Index

We begin our multivariate analysis by examining the determinants of ESG-Governance. To do so, we estimate panel regressions of the form:

$$(1) \quad ESG\ BGI_{j,t} = \beta_0 + \beta_1 BFS_{j,t-1} + \beta_2 BSS_{j,t-1} + \beta_3 BFS \times BSS + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

$$(2) \quad ESG\ BGI_{j,t} = \beta_0 + \beta_1 BFS_{j,t-1} + \beta_2 NES_{j,t-1} + \beta_3 BFS \times NES + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

In the above equation, subscript j denotes the bank and t denotes the year. In these regressions, we control for important bank financial characteristics (BFS) and country environment characteristics (BSS and NES) that may affect banks' ESG governance. We estimate the regression on a panel that has one observation for each bank-year combination, and spans the 2005 to 2014 time period (10 years' time horizon). We include year fixed effects and bank specialization fixed effects in all specifications. We include bank specialization fixed effects to control for unobserved heterogeneity across the different bank business models. Therefore, the coefficients capture the effect of a change in the underlying variable on the change in ESG Governance within the same banking specialization.[4] All specifications are estimated using heteroscedasticity-robust standard

[4] We decided to use bank specialization fixed effects to be able to use the most specific group constant term. We could not use bank-firm fixed effects as we are examining the variation of banks' financial characteristics. The same

errors that are clustered at the level of specialization. We use ***, **, and * to denote statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Insert Table 11 about here

Table 11 presents stepwise regression models that examine the relationship between banks' ESG-Governance Scores and their financial (BFS) and country environment (BSS in Panel A and NES in Panel B) characteristics, gradually introducing our main variables of interest and the interaction between these two variables. The results presented in Colum III of Panel A and Panel B correspond to our full regression model, i.e., equation (1) and (2), respectively.

In terms of the one year lagged Bank Financial Score (BFS), all model specifications reveal a negative and significant relationship with the ESG Banking Governance Index, thereby supporting hypothesis H1b. A one-point increase in the lagged Bank Financial Score corresponds to a decrease in the ESG BGI of 1.1454, all else equal. The economic significance of the coefficient estimate of BFS is therefore large. The result seems to suggest that financially unsustainable banks have a higher ESG BGI because they consider investments into ESG measures as part of their extended risk management. Hence, banks with riskier, less stable bank financials tend to invest more in high quality ESG governance. Therefore, financial stability as measured by high-quality bank financials and the ESG BGI level seem to be substitutes, rather than complements.

As expected, the Banking Sector Score (BSS) is positively associated with the ESG Banking Governance Index and economically significant with a coefficient estimate of BSS for specification III of 1.3898, corresponding to a 0.72-point increase of BSS for a one-point increase in the ESG BGI. Thus, we find support for hypothesis H2a. Consistent with standard approaches to reach more inclusive and stable financial systems (higher BSS), this finding indicates that the direct effect of countries with more developed banking systems is an enhancement of the banks' ESG Governance. ESG-related policy measures, therefore, seem to be most effective if the country's banking sector is highly developed.

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holds true for the exclusion of country fixed effects as we are examining the effect of the national environment on the bank's ESG governance level.

Interestingly, the National Economy Score (NES) is neither statistically nor economically significantly associated with the banks' ESG governance, so we can neither support hypothesis H2c nor H2d. With regards to the Country Environment measures, a higher Banking Sector Score seems to be the driving force for a high ESG BGI, whereas the development of the National Economy does not have any significant impact on the ESG BGI. Hence, policy measures which try to enhance sustainability measures in different industries by mandating equal requirements from all sectors, may prove to be ineffective for the banking industry.

Finally, we introduce the interaction between BFS and BSS. This interaction is negatively and significantly related to ESG BGI in all specifications, thereby supporting hypothesis H3b. This negative interaction effect reinforces the negative effect of the BFS on banks' ESG governance level. The total effect of BFS ($\beta_1 + \beta_3$) remains negative (specification III), providing further evidence that the level of the ESG BGI is higher for banks with weaker bank financials. However, when taking the interaction effect between BFS and NES into account, the picture changes: Table 11, Panel B shows that the sign of the relationship between the ESG BGI and the National Economy Score depends materially on each banks' financial characteristics. In the regressions that include the interaction between the bank's BFS and its Country Environment Score (both BSS and NES), the index of the Country Environment Score enters negatively and significantly. This may provide a first indication that a further development of a country's banking sector as well as a country's national economy are unnecessary for higher ESG banking governance, when the banks themselves have fundamentally sound and stable business models.

Hence, ignoring the interactions between the country environment and the financial characteristics of the individual banks leads to erroneous inferences about the impact of more stringent policy measures to develop sustainable banking sectors and each country's national economy on the ESG Governance of individual banks. From this perspective, improvements in ESG economy and banking sector policy measures will only improve the quality of ESG Banking Governance when the policy system is customized to the banks domiciled in the respective country.

5.3.2 Social Performance and Risk Effects of ESG Banking Governance Index

We use the following two variables to measure the social performance and risk effects of our ESG Banking Governance Index: ESG-Awards and Reputational Risk. ESG-Awards is measured taking the binary answers from the ASSET4 database which asks companies whether they have received

an ESG award in the respective year. We measure Reputational Risk using answers from the same database on the question whether the company suffers reputational risk because of issues around business misconducts.

In this section, we are specifically interested in the following two time periods: Pre-, Crisis, and Post-Crisis periods and short-term versus long-term time periods. To test the Pre-, Crisis- and Post-Crisis social performance and risk effects of the ESG Banking Governance Index, we estimate panel regressions of the following form

(3) $$ESG\ \text{Award}_{j,t} = \beta_0 + \beta_1 ESG\ BGI_{j,t} + \beta_2 CRISIS\ YEAR\ DUMMIES + \beta_3 ESG\ BGI_{j,t}\ \text{x}\ CRISIS\ YEAR\ DUMMIES + \beta_{\text{i}} Controls_{i,t-1} + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

(4) $$Rep\ Risk_{j,t} = \beta_0 + \beta_1 ESG\ BGI_{j,t} + \beta_2 CRISIS\ YEAR\ DUMMIES + \beta_3 ESG\ BGI_{j,t}\ \text{x}\ CRISIS\ YEAR\ DUMMIES + \beta_{\text{i}} Controls_{i,t-1} + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

We estimate these regressions on a panel that has one observation for each bank-year combination, includes all 270 sample banks, and spans the 2005 to 2014 period. In the above equation, subscript j denotes the bank and t denotes the year. The dependent variable of regression (3) is ESG Award, and the main independent variable is the bank's ESG BGI. PRE is a dummy variable that equals 1 for the pre-crisis years, 2005 to 2007; CRISIS is a dummy variable that equals 1 for the crisis years, 2008 and 2009; POST is a dummy variable that equals 1 for the post-crisis years, 2010 to 2014. When examining the Pre-, Crisis, and Post-Crisis periods, we condition on the bank financials, the country's banking sector and the country's national economy that may affect ESG-Awards and Reputational Risk, respectively. We include year fixed effects in all our specifications, and control for unobserved heterogeneity across banks using bank specialization fixed effects.

The results of our estimation are presented in Table 12. In all specifications, the standard errors are robust to heterogeneity and are clustered at the individual bank level.

Insert Table 12 about here

Panel A of Table 12 displays the effect of the Pre-, Crisis- and Post-Crisis ESG Banking Governance Index on ESG-Award. In this regression, ESG-Award is a measure of the banks' ability to receive an ESG-Award in a certain year. In terms of the coefficients on the interaction term of ESG BGI x PRE, we find that the coefficient is positive and weakly significant without any controls. However, this association turns insignificant as soon as we include our control variables. As the variable ESG BGI stays significantly positive, and the total effect of a one-point increase in ESG BGI at pre-crisis times is economically significant, with a 41% higher chance to receive an ESG-Award, we conclude that the impact of ESG Banking Governance on the possibility to receive an ESG-Award has been significantly positive in the pre-crisis years of 2005 to 2007.

Interestingly, the interaction of ESG BGI x CRISIS is significantly negative, indicating that the effect of the ESG Banking Governance Index on the possibility to receive an ESG-Award is lower in crisis years compared to non-crisis years. The total effect of a one-point increase in ESG BGI at crisis times is also economically significant, with a 34% lower chance to receive an ESG-Award. The interaction of ESG BGI x POST is again significantly positive, indicating that the effect of the ESG BGI on the possibility to receive an ESG Award is significantly higher after the financial crisis than in pre-crisis and crisis years. However, the total effect of a one-point increase in ESG BGI at post-crisis times results in an economically significant, lower chance to receive an ESG-Award. Hence, we do not find any support for hypothesis H4a with regards to ESG-Awards.

Panel B of Table 12 displays the effect of the Pre-, Crisis- and Post-Crisis ESG Banking Governance Index on Reputational Risk. We find that the interaction of ESG BGI x PRE is positive, but neither statistically nor economically significant with and without any controls. This indicates that the ESG Banking Governance Index has no impact on Reputational Risk in the pre-crisis years of 2005 to 2007. As is the case with ESG Award achievements, the interaction of ESG BGI x CRISIS is significantly negative, indicating that the effect of the ESG Banking Governance Index on Reputational Risk is lower in crisis years compared to non-crisis years. The interaction of ESG BGI x POST is positive, but not significant, indicating that the effect of the ESG BGI on Reputational Risk weakens slightly in post-crisis years. In sum, these results display a more critical attitude of the public towards the true sustainability risk of banks, reflected in a higher reputational risk for banks with lower ESG Banking Governance Indices during the crisis years, compared to

the years before and after the financial crisis. We therefore do not find any support for hypothesis H4a concerning Reputational Risk.

Next, we test the impact of short- and long-term ESG Banking Governance Index (ESG BGI) on social performance and risk, again taking ESG-Award as a proxy for social performance and Reputational Risk as a proxy for social risk. We specify the regressions in the following form

$$(5)\quad ESG\ \text{Award}_{j,t} = \beta_0 + \beta_1 ESG\ BGI_{j,t-1} + \beta_2 BFS_{j,t-1} + \beta_3 BSS_{j,t-1} + \beta_4 NES_{j,t-1} + \beta_5 ESG\ BGI_{j,t-3} + \beta_6 BFS_{j,t-3} + \beta_7 BSS_{j,t-3} + \beta_8 NES_{j,t-3} + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

$$(6)\quad Rep\ Risk_{j,t} = \beta_0 + \beta_1 ESG\ BGI_{j,t-1} + \beta_2 BFS_{j,t-1} + \beta_3 BSS_{j,t-1} + \beta_4 NES_{j,t-1} + \beta_5 ESG\ BGI_{j,t-3} + \beta_6 BFS_{j,t-3} + \beta_7 BSS_{j,t-3} + \beta_8 NES_{j,t-3} + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

The results are shown in Table 13, Panel A for the effects on ESG-Award achievements and Panel B for the effects on Reputational Risk. When examining the short- versus long-term effects, we control for the second social variable, i.e. when testing the social performance effects, we control for the risk effect and when testing the social risk effects, we control for the performance effect.

Insert Table 13 about here

Concerning the impact of short- and long-term ESG BGI on ESG-Award, we find that a comparably strong ESG Banking Governance Index in the prior year is related to a higher probability to receive an ESG-Award in the current year. But this relation turns negative, with banks with lower ESG Governance Indices three years ago having a higher probability of receiving an ESG-Award in the respective current year. This might point towards an award system which rewards a relative improvement of a bank's sustainability governance for being electable for an award, instead of an absolute ESG-Governance threshold.

A higher probability to receive a sustainability award is unrelated to bank financials in the short-term, however same as with the ESG BGI, banks with less sustainable bank financials three years ago have a weakly higher probability to receive a sustainability award. A lower Banking Sector

Score (BSS), however, leads to a higher probability to receive an award in the short-term. In the long-term, the banking sector seems to be unrelated with the probability of receiving an award. A more developed national economy (NES), on the other hand, is only weakly positively related to receiving an award in the short-term, but unrelated in the long-term. The results also indicate a positive relation between ESG-Awards and Reputational Risk, thereby questioning the validity of ESG-Awards as an unbiased measure of low reputational risk.

With regards to the impact of short- and long-term ESG BGI on Reputational Risk, the positive and highly significant coefficient on the one year lagged as well as on the three years lagged ESG Banking Governance Index indicates that a strong ESG Banking Governance Index in the prior year and three years ago is related to a higher reputational risk. Hence, a high ESG Banking Governance Index enforces, rather than reduces reputational risk, both in the short- and long-term. However, the relationship between reputational risk and the ESG Banking Governance Index is economically small. This indicates that banks which invest in ESG Banking Governance are under slightly higher scrutiny by the public.

We also find that higher reputational risk is linked with unsustainable bank financials in the short- and long-term as indicated by the significantly negative, but economically rather small coefficient on the Bank Financial Score (BFS). Banking sector development seems to be unrelated with reputational risk. However, a more developed national economy appears to lead to more reputational risk in the long-term, thereby pointing to a vigilant and supervising civil society and government. The results also indicate a positive relation between ESG-Awards and Reputational Risk, thereby again questioning the validity of ESG-Awards.

5.3.3 Economic Performance and Risk Effects of ESG Banking Governance Index

We use the following four variables to measure the economic performance and risk effects of our ESG Banking Governance Index: Return on Assets and Return on Common Equity for the economic performance and Variance in Total Business Volume and Impaired Loan Ratio for the economic risk. To test the Pre-, Crisis- and Post-Crisis economic performance and risk effects of the ESG Banking Governance Index, we estimate panel regressions of the following form

(7) $$Economic\ Performance_{j,t} = \beta_0 + \beta_1 ESG\ BGI_{j,t} + \beta_2 CRISIS\ YEAR\ DUMMIES + \beta_3 ESG\ BGI_{j,t} \text{ x } CRISIS\ YEAR\ DUMMIES + \beta_i Controls_{i,t-1} + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

(8) $$Economic\ Risk_{j,t} = \beta_0 + \beta_1 ESG\ BGI_{j,t} + \beta_2 CRISIS\ YEAR\ DUMMIES + \beta_3 ESG\ BGI_{j,t} \text{ x } CRISIS\ YEAR\ DUMMIES + \beta_i Controls_{i,t-1} + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

The results of our estimation are presented in Table 14. In all specifications, the standard errors are robust to heterogeneity and are clustered at the individual bank level.

Insert Table 14 about here

In Table 14, Panel A we examine how the association between ESG-Governance and ROA varies between pre-crisis, crisis and post-crisis years. As before, PRE is a dummy variable that equals 1 for the pre-crisis years, 2005 to 2007; CRISIS is a dummy variable that equals 1 for the crisis years, 2008 and 2009; POST is a dummy variable that equals 1 for the post-crisis years, 2010 to 2014.

The results in Table 14, Panel A indicate that in the pre-crisis period the interaction of ESG BGI x PRE is significantly negatively associated with Return on Assets (ROA). This seems to suggest that a high ESG-Governance does not earn higher returns in the pre-crisis period. Yet, the economic significance of the coefficients with controls (column II) is rather small. Furthermore, we do not find any significant relationship between ESG-Governance and Return on Assets during the crisis nor the post-crisis periods. In the crisis period, the interaction ESG BGI x CRISIS is marginally positively associated with Return on Assets, indicating a slight, but economically insignificant reward in the form of higher Return on Assets for banks with high ESG-Governance during times of crisis. However, the different time frames seem to determine the economic relationship between the ESG BGI and the banks' Return on Assets, with 15% increase of the Return on Assets in crisis periods.

In Panel B of Table 14 we find that opposite to the negative association between ESG-Governance and ROA, the association between ESG-Governance and the banks' return on common equity (ROE) is positive and highly significant, with larger positive, yet economically rather small coefficients to ESG-Governance before the crisis years. Good ESG-Governance over all time periods examined appears to have a significant positive effect on Return on Equity. However, the crisis period by itself seems to have a significantly negative impact on banks' ROE measure. In column IV, the coefficient of ESG BGI x CRISIS is marginally positive, but insignificant, indicating that the impact of good ESG-Governance on banks' Return on Equity does not vary during crisis times. However, we find a switch in the relation between good ESG-Governance and ROE before and after the crisis from significantly positive to marginally negative. This may provide a first indication that the equity investors which invest in banks with good ESG-Governance after the crisis (=POST) are not the ones interested in very high, short-term returns anymore. Hence, it seems that investors become more favorable about sustainably operating banks after the financial crisis, which is in line with theory that shareholder and stakeholder demands are converging. In addition, whereas banks with more sustainable bank financials are able to earn higher returns for their investors, banks with a lower Banking Sector Score as well as a lower National Economy Score earn higher returns for their investors. This suggests that equity investors price risk differently, depending on whether the bank's own financial structure or externally imposed standards of the banking sector or country of domicile are concerned.

As displayed in Panel C of Table 14, the effect of Pre-, Crisis- and Post-Crisis ESG Banking Governance Index on the banks' Variance in Total Business Volume is in line with our findings about size: Larger banks are considered riskier after the financial crisis. We find a weakly significant, positive interaction effect of ESG BGI x PRE, which switches to a highly significant, negative interaction effect of ESG BGI x POST. Hence, banks with higher ESG-Governance scores after the crisis seem to decrease their business volume to achieve more stable core business levels. The exact opposite effect seems to hold for the banks' Impaired Loan Ratio as shown in Table 14, Panel D. Here highly significant and negative interaction effects of ESG BGI x PRE and ESG BGI x CRISIS change to a highly significant, positive interaction effect of ESG x POST. However, the economic relationship between the ESG BGI and the banks' Impaired Loan Ratio is largely driven by the different time frames.

Lastly, we test the impact of short- and long-term ESG Banking Governance Index (ESG BGI) on economic performance and risk, again taking banks' Return on Asset and Return on Common Equity as proxies for economic performance and banks' Variance in Total Business Volume and banks' Impaired Loan Ratio as proxies for economic risk. We specify the regressions in the following form

$$(9)\quad Economic\ Performance_{j,t} = \beta_0 + \beta_1 ESG\ BGI_{j,t-1} + \beta_2 BFS_{j,t-1} + \beta_3 BSS_{j,t-1} + \beta_4 NES_{j,t-1} + \beta_5 ESG\ BGI_{j,t-3} + \beta_6 BFS_{j,t-3} + \beta_7 BSS_{j,t-3} + \beta_8 NES_{j,t-3} + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

$$(10)\quad Economic\ Risk_{j,t} = \beta_0 + \beta_1 ESG\ BGI_{j,t-1} + \beta_2 BFS_{j,t-1} + \beta_3 BSS_{j,t-1} + \beta_4 NES_{j,t-1} + \beta_5 ESG\ BGI_{j,t-3} + \beta_6 BFS_{j,t-3} + \beta_7 BSS_{j,t-3} + \beta_8 NES_{j,t-3} + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

The results are shown in Table 15, Panel A for the effects on Return on Asset (ROA), Panel B for the effects on Return on Common Equity (ROE), Panel C for the effects on banks' Variance in Total Business Volume and Panel D for the effects on the banks' Impaired Loan Ratio.

Insert Table 15 about here

Concerning the impact of short- and long-term ESG BGI on the bank's Return on Asset, we find that a comparably low ESG Banking Governance Index in the prior year is related to a higher Return on Asset for the bank in the current year. This relation stays the same in the long-term as again the coefficient on the three-year lagged ESG BGI is significantly negative. This might point towards an economic performance effect under which profit maximization is not the primary target of sustainable banks.

Interestingly, the impact of ESG-Governance on the banks' Return on Equity varies with the time horizon: on a short-term basis, the relationship between ROE and ESG-Governance is significantly positive. However, taking into consideration the ESG-Governance score of three years ago, the impact of good ESG-Governance turns negative and significant, providing evidence that the return

on equity is higher for banks with weaker ESG-Governance. This result is consistent with the notion that ESG-Governance effects on the banks' financial performance measures should be considered over a longer time horizon. As a high ESG-Governance score widely contradicts a high return on equity measure, our results are in line with theoretical predictions criticizing ROE as a misguided short-term measure.

With regards to the impact of short- and long-term ESG BGI on banks' Variance in Total Business Volume, the negative and highly significant coefficient on the one year lagged as well as the negative, but insignificant coefficient on the three years lagged ESG Banking Governance Index indicates that a strong ESG Banking Governance Index in the prior year and three years ago is related to a lower Variance in Total Business Volume. Hence, a high ESG Banking Governance Index slightly reduces economic market risk, both in the short- and long-term. This is in line with banks investing into ESG Banking Governance due to its risk mitigation potential. Regarding the impaired loan ratio, the data indicates a different impact of short-term and long-term ESG BGI of a bank. Whereas the coefficient of the one year lagged ESG BGI shows a significantly negative relation, the three year lagged ESG BGI indicates a significantly positive effect. However, this result may as well be an indication for the higher and more timely loan loss recognition of sustainable banks compared to unsustainable banks which tend to delay loan losses.

5.4 Robustness Tests

A specific concern about our econometric methodology is that of endogeneity. A bank might adopt a certain level of ESG banking governance and the financial characteristics of that bank might occur in response to specific forces that we do not observe. Without any clear external controls, our ability to deal with this endogeneity issue is limited. One approach we use to mitigate these concerns is to lag the bank financial and country environment characteristics by one year relative to the respective examined years.

Next, we test the validity of the ESG Banking Governance Index as a proxy for a sustainable business conduct. For this, we rerun the regressions (1) and (2) with the individual component

scores – the ESG Structure Score, the ESG Reporting Score, and the ESG Business Activities Score – which together build the ESG Banking Governance Index:

(11) $$ESG\ Structure\_Reporting\_BusinessActivities_{j,t} = \beta_0 + \beta_1 BFS_{j,t-1} + \beta_2 NES_{j,t-1} + \beta_3 BSS_{j,t-1} + \beta_4 BFS \times NES + \beta_5 BFS \times BSS + Year\ FE + Bank\ Specialization\ FE + \varepsilon$$

Insert Table 16 about here

The results are presented in Table 16 and are similar to the main findings of the determinants of the ESG Banking Governance Index presented in Table 11. For all three individual scores, the coefficient on the variable *BFS (t-1)* is again negative and significant, which confirms our prior finding that financially less sustainable banks have comparably higher ESG Banking Governance Indices. Same as in our results with the sum score, ESG Banking Governance Index, the National Economy Score *NES(t-1)* has no significant impact on the individual component scores, whereas the Banking Sector Score *BSS(t-1)* significantly positively impacts all component scores. Therefore, we are confident that our ESG Banking Governance Index captures the key aspects of sustainable banking business management. The interaction effects between the bank financial characteristics on the one hand and the two country environment scores on the other also stay the same as in Table 11, with minor differences in their significance: the interaction effect between *BFS* and *NES* is negative, but insignificant for the ESG Structure Score, whereas the interaction effect between *BFS* and *BSS* is negative, but insignificant for the ESG Business Activities Score. This seems to suggest that the banking sector development is more important for a sustainable banking structure, but the development of the overall national economy in which the bank is domiciled plays a major role in fostering sustainable banking business activities. Lastly, our findings are more in line with the risk-reduction hypothesis than the window-dressing hypothesis (Hummel and Festl, 2015; Jo and Na, 2012) since we find no significant difference between the ESG Reporting Score and the ESG Business Activities Score, i.e. it is the same banks which have a good ESG reporting who also integrate ESG measures into their business activities. Thus, our findings remain stable if we account for the influence of the individual components of the ESG Banking Governance Index, which, again, supports hypotheses H1, H2 and H3.

Insert Table 17 about here

Finally, in Table 17, we investigate whether our results change if we use the real values for the individual bank financials which build the Bank Financial Score, *BFS* instead of the above and below mean values as used in the main regressions. For this, we test the correlations between the ESG Banking Governance Index and the individual bank financials, once using above and below mean values and once using their real values. This analysis enables us to check whether our findings still hold true with the binary approach used. We find two significant differences between above/below mean and real values. For the bank financial variable *Provisions for Loan Losses/ Total Loans* the correlation with the ESG Banking Governance Index remains slightly positive if real values are used, however the correlation loses its significance. Using real values for the variable *Off-balance sheet commitments/ Total Assets,* we do not find any significant relationship between this ratio and the ESG Banking Governance Index. All other variables keep their significance and correlation sign. We can therefore conclude that our overall results still hold using the binary above/ below mean Bank Financial Score for our main regressions.

6. Conclusion

In this paper, we first construct an ESG-index for the banking industry. Secondly, we explain this index for individual banks by bank financial, banking sector, and country specific variables, and third, we measure the impact of the ESG-index on banks' social and economic performance.

Prior literature (e.g. Aebi et al., 2012; Cohn et al., 2015; Ellul and Yerramilli, 2013; Gillet et al., 2012) indicates that banks can have a comparatively high – compared to companies from other sectors – incentive to invest in ESG measures, because ESG criteria can be understood as part of a bank's wider risk management. Our data display a significantly positive correlation between the financial riskiness of a bank and its score in ESG measures. Vice versa, the less risky the business model of a bank is, the lower it scores in the ESG Banking Governance Index. This can be of relevance for policy-makers since it contradicts the frequently held assumption that in order to advance environmental, social, and governance concerns, a country should rather incentivize its banking industry so as to lower risk. On the other hand, our findings can be interpreted the other way around: it seems more important that banks are incentivized to deliver solid and sustainable risk management. The reason is that, according to our data, this is not only a sensible goal in its own right but also serves as an effective measure to advance the fulfillment of ESG criteria.

Furthermore, we ran regressions to test whether, on the one hand, banking-sector specific and whether, on the other hand, national-economy specific characteristics influence the ESG scores of individual banks in the country of domicile under consideration. Either of these two dimensions makes up our country environment score. Thereby, our dataset indicated that characteristics of the banking-sector surpass characteristics of the country's national economy score when accounting for the ESG scores of individual banks. Hence, our findings support the stream of literature (e.g. Barth et al., 2004; Doidge et al., 2007) that argues that regulation of the economy can only have an impact on the banking sector if it is tailor-made to the specificities of the banking-sector. Our data, thus, reject the kind of literature (e.g. Ball et al., 2003; Bushman and Piotroski, 2006; Demirgüç-Kunt et al., 2004) that supposes that the banking sector of a country has no separate influence on ESG scores apart from national economy characteristics.

At the same time, our results do not indicate that the national economy score of a country is negligible for understanding the ESG scores of individual banks. Therefore, our research connects to the vast literature that emphasizes that especially the differences between developed and

developing countries are pertinent for understanding ESG. Our data indicates that risky banks invest comparably more in ESG when they are domiciled in a country with a comparatively high banking-sector score. That the higher banking-sector score of a country is closely linked to a higher degree of competition in the country's banking sector strengthens our supposition that risky banks consider ESG to be part of its risk management strategy.

All in all, our results on what drives the ESG scores of individual banks build a coherent case for assuming that the ESG scores of banks can only be improved with policy measures when these measures are, first, tailored to the banking industry and, second, tailored to specific countries. This applies to policies internal to the market as well as to public policies. Therefore, the findings of our paper raise a cautionary flag regarding supra-national efforts for framing and implementing global super-regulations. 'Think globally but regulate locally' is our paper's provisional recommendation to policy-makers.

We also used our dataset to test whether a bank's ESG score has wider repercussions on the bank's performance with regards to earning awards, decreasing reputational risk, improving ROE as well as ROA and decreasing business risk. We tested these variables with a number of differentiations that are suggested by the previous literature on ESG. We relied on a differentiation between pre-crisis, during-crisis, and post-crisis times as well as on a differentiation between banks' short-term and long-term ESG-score. Our data indicates that the banks' ESG governance scores are relevant for their social and economic performance. As such, our study adds to this part of the literature on ESG that deems ESG an indicator of wider bank performance (e.g. Gramlich and Finster, 2013; Hummel and Festl-Pell, 2015). Furthermore, our data demonstrates that this effect has significantly increased since the financial crisis. Therefore, we provide empirical support for the argument that the financial crisis has led to shifts regarding what investors value in a large bank. Especially the fact that this evidence is strong for the financial effects lends itself to the claim that investors pay more attention to a bank's ESG score since the crisis than before the crisis.

Connecting the findings of the paper at hand to the wider theoretical background it belongs to, and as we sketched it in section 2, our paper can be interpreted as lending credence to the hypothesis that there is increasing convergence between stakeholder and shareholder demands. Ensuing from the insight of Jensen (1989) that shareholder-driven companies must at least pay attention to potential profitable investments in stakeholder interests, the findings of the paper at hand

emphasize that there is no strict dichotomy between stakeholder and shareholder demands. More specifically, the findings of this paper provide tentative support for Rahman's argument that there is a positive relation between so called 'green finance' and economic growth (Rahman, 2015) as well as for the "Doing-Well-by-Doing-Good" argument (Andreoni, 1989; Becker, 1974; Besley and Ghatak, 2005). The strong relation between a bank's ESG-score and its financial performance, which the paper at hand provides evidence for, indicates that, at the very least, investments in ESG do not disadvantage banks compared to competitors that do not make such investments. At the same time, the finding that risky banks score significantly higher on ESG indices, compared to secure banks, demonstrates that corporate strategies that are traditionally presumed to be shareholder-driven are not, in general, in conflict with larger social demands. Therefore, our findings suggest that the quote by Friedman (1962) that introduced the paper at hand might be telling the truth, but only part of the truth. It should probably be complemented as follows:

> *There is one and only one responsibility of economic policy-makers – to use its policies for engaging in rules designed to improve ESG-factors so long as it stays connected to the banking sector, which is to say, engages in intellectual exchange with the latest developments in the world of finance, without distrust or suspicion.*

Table 1: Composition of ESG Structure score

ESG Structure Question	Evaluation of ESG Structure quality	Explanation	Source
Does the company have a policy to maintain an effective and independent CSR committee?	Yes = 1; No = 0	General Rule: Only direct statements by the company matter here. Inference through legal obligations must not be taken into account here. CSR: The company strives to maintain a committee reviewing the company's policies and programs that relate to matters of corporate responsibility (social and environmental)	Thomson Reuters ASSET4 database
Is the senior executive's compensation linked to CSR/H&S/ Sustainability targets?	Yes = 1; No = 0	Companies will receive a "Yes" for this indicator if any one of their senior executives' compensation is linked to CRS/H&S/Sustainability targets.	Thomson Reuters ASSET4 database
Does the company describe the implementation of its integrated strategy through a public commitment from a senior management or board member?	Yes = 1; No = 0	Companies which make a commitment about Integrated Vision and Strategy and/or have a CSR Sustainability Committee will receive a "Yes" for this indicator.	Thomson Reuters ASSET4 database
Does the company describe the implementation of its integrated strategy through the establishment of a CSR committee or team?	Yes = 1; No = 0	Companies who make a commitment about Integrated Vision and Strategy and/or have a CSR Sustainability Committee will receive a "Yes" for this indicator.	Thomson Reuters ASSET4 database
Does the company have a policy to integrate ESG issues into its strategy and day-to-day decision making?	Yes = 1; No = 0	Integrated Strategy: The company strives to achieve on a company-wide vision, strategy or policy where sustainable development, social or environmental elements are a focal element of it.	Thomson Reuters ASSET4 database
Has there been a public commitment from a senior management or board member to integrate ESG issues into the company strategy and day-to-day decision making?	Yes = 1; No = 0	General Rule: Only direct statement by the company matter here. Inference through legal obligations must not be taken into account.	Thomson Reuters ASSET4 database

Does the company have a CSR committee or team?	Yes = 1; No = 0	* Data on any team/committee dedicated to managing environmental and social issues of the reporting organization on a day to day basis is considered. * The team can be termed as committee comprising of employees of the reporting organization, who are operational on a day to day basis and are not part of the board committees, as listed under Corporate Governance matters.	Thomson Reuters ASSET4 database
Does the company have a policy to avoid bribery and corruption at all its operations?	Yes = 1; No = 0	Bribery and Corruption: The company strives to avoid bribery and corruption for all its operations.	Thomson Reuters ASSET4 database
Does the company train its employees on the prevention of corruption and bribery?	Yes = 1; No = 0	The company has training measures in place to teach its employees on the prevention of corruption and bribery.	Thomson Reuters ASSET4 database

Table 2: Composition of ESG Reporting score

ESG Reporting Question	Evaluation of ESG Reporting quality	Explanation	Source
Does the company report on belonging to a specific sustainability index?	Yes = 1; No = 0	* Sustainability indexes such as FTSE4Good, DJSI	Thomson Reuters ASSET4 database
Has the company signed the UN Global Compact?	Yes = 1; No = 0	* Data from external source (http://www.unglobalcompact.org) is considered.	Thomson Reuters ASSET4 database
Does the company explain how it engages with its stakeholders?	Yes = 1; No = 0	* Data on how the reporting organization is engaging with its stakeholders, how the stakeholders are involved in its decision-making process and what procedures are in place for engagement is considered.	Thomson Reuters ASSET4 database
Does the company publish a separate sustainability report or publish a section in its annual report on sustainability?	Yes = 1; No = 0	* The minimum number of pages required is 5 pages * When the company publishes CSR reports bi-annually, in any year when there was no report, the data point is answered No.	Thomson Reuters ASSET4 database
Does the company report about the challenges or opportunities linked to the integration of financial and extra-financial issues?	Yes = 1; No = 0	Data on how the company reports openly about the challenges or opportunities of integrating financial and extra-financial issues, and the dilemmas and trade-offs it faces.	Thomson Reuters ASSET4 database
Does the company integrate financial and extra-financial factors in the management discussion and analysis section of the annual report?	Yes = 1; No = 0	Data on how the reporting organization is integrating financial and extra-financial factors in the management discussion and analysis section of the annual report.	Thomson Reuters ASSET4 database

Table 3: Composition of ESG Business Activities score

ESG Business Activities Question	Evaluation of ESG Business Activities quality	Explanation	Source
Does the company participate in any emissions trading initiative, as reported by the company?	Yes = 1; No = 0	*Data on whether the reporting organization claims to be participating in any emission trading (cap-and-trade) scheme is considered.	Thomson Reuters ASSET4 database
Does the company report on making environmental investments to reduce future risks or increase opportunities?	Yes = 1; No = 0	*Data point takes into account investment made by the reporting organization in the current Fiscal Year so as to reduce future risks and increase future opportunities related to the environment.	Thomson Reuters ASSET4 database
Does the company report on ESG screened Assets Under Management?	Yes = 1; No = 0	*Data on whether the reporting organization, as an asset manager, is integrating environmental criteria in its decision making process prior to making an investment is considered.	Thomson Reuters ASSET4 database
Is the company a signatory of the Equator Principles (commitment to manage environmental issues in project financing)?	Yes = 1; No = 0	* Data from external source (http://www.equator-principles.com/index.php/members-reporting) is considered.	Thomson Reuters ASSET4 database
Does the company claim to use ESG criteria as part of its investment or lending or underwriting decisions?	Yes = 1; No = 0	*Focus is on project financing. *What is considered here is whether reporting organization is evaluating projects based on ESG risks prior to providing funding to its customers.	Thomson Reuters ASSET4 database
Does the company report on assets under management which employ environmental screening criteria or environmental factors in the investment selection process?	Yes = 1; No = 0	Data on whether the reporting organization, as an asset manager, is integrating environmental criteria in its investment selection process.	Thomson Reuters ASSET4 database
Does the company show in its role as an asset manager that it promotes socially responsible investments?	Yes = 1; No = 0	Data on whether the reporting organization, as an asset manager, is reporting about its role of promoting socially responsible investments.	Thomson Reuters ASSET4 database

Table 4: Composition of Bank Financial Score (BFS)

Formula	Evaluation of bank financial sustain-ability	Explanation	Source
Total Assets	Below mean	A below mean size of the bank is regarded as less risky and more viable.	Bloomberg
RWAs/Total Assets	Below mean	The share of risk-weighted assets to total assets is decreasing asset risk	Bloomberg
Net Charge-Offs to Loans = [Annualized (Total Charge-Offs - Total Recoveries)] / Average Total Loans	Below mean	The net charge-off ratio evaluates the financial institution's loan quality and risk management practices.	Bloomberg
Provisions for Loan Losses / Net Interest Income	Below mean	This ratio is a profitability measure of the bank with respect to its interest-earning business. The lower the numerator and the higher the denominator, the more profitable the loan business of the bank.	Bloomberg
Provisions for Loan Losses / Total Loans	Below mean	This ratio is part of Asset Quality ratios of the bank and determines the quality of loans of a bank (credit risk). The higher the ratio, the more problematic the loans are and vice versa.	Bloomberg
Off-balance sheet commitments / Total Assets	Below mean	This ratio determines the transparency and counterparty risk of a bank. The higher the off-balance sheet commitments to total assets, the less transparent and more volatile the asset base of the bank.	Bloomberg
Long-term debt to equity	Above mean	A higher share of long-term debt is decreasing volatility risk.	ASSET4 Database
Return on Asset	Above mean	A higher return on total assets is increasing long-term performance.	Bloomberg
Tier 1 Capital Ratio	Above mean	A higher Tier 1 capital ratio is decreasing capital risk.	Bloomberg
Deposits to Funding	Above mean	This ratio shows the share of deposits to the total funding of banks. The higher the share of deposits, the more long-term and	Bloomberg

		therefore the less risky the funding of the bank.	
Commercial Loans / Total Loans	Above mean	This ratio determines the type of loan the bank makes. The higher the share of commercial loans, the more efficient the bank's role as a financial intermediary to the real sector.	Bloomberg
Long-term Borrowings / Total Liabilities	Above mean	This ratio represents the liability risk of banks. The higher the share of long-term borrowings to total liabilities, the less risky the liabilities of the bank.	Bloomberg

Table 5: Composition of Banking Sector Score (BSS)

Formula	Evaluation of banking sector development	Explanation	Source
Commercial bank branches per 100,000 adults	Above mean	This measure represents the density of bank branches and therefore the physical access of adults to banks.	International Monetary Fund, Financial Access Survey website
Outstanding loans from commercial banks (% of GDP)	Above mean	This measure represents the use of financial services of commercial banks.	International Monetary Fund, Financial Access Survey website
Outstanding deposits with commercial banks (% of GDP)	Above mean	This measure represents the funding of financial services of commercial banks.	International Monetary Fund, Financial Access Survey website
Number of ATMs per 100,000 adults	Above mean	This measure represents the access to financial institutions' physical outlets.	International Monetary Fund, Financial Access Survey website
Bank Regulatory Capital to Risk-Weighted Assets	Above mean	This ratio measures the capital adequacy of deposit taking banks. Capital adequacy and availability ultimately determine the degree of robustness of financial institutions to withstand shocks to their balance sheets.	Data submitted by national authorities to the IMF following the Financial Soundness Indicators (FSI) Compilation Guide and for dissemination through FSIs website http://fsi.imf.org/
Country-specific frameworks to include environmental risks in banking	Above mean	This measures represents the existence of country policy measures which govern environmental risks in the banking sector.	Stability and Sustainability in Banking Reform: Are Environmental Risks Missing in Basel III? (CISL & UNEP FI, 2014)

Table 6: Composition of National Economy Score (NES)

Formula	Evaluation of national economy development	Explanation	Source
GDP growth (annual %)	Above mean	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.	World Bank national accounts data, and OECD National Accounts data files.
GDP per capita (current US$)	Above mean	GDP per capita is gross domestic product divided by midyear population. Data are in current U.S. dollars.	World Bank national accounts data, and OECD National Accounts data files.
Foreign direct investment, net (BoP, current US$)	Above mean	Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.	International Monetary Fund, Balance of Payments Statistics Yearbook and data files.
Agriculture, value added (% of GDP)	Above mean	Agriculture includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs.	World Bank national accounts data, and OECD National Accounts data files.
CO2 emissions (metric tons per capita)	Below mean	Carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring.	Carbon Dioxide Information Analysis Center, Environmental Sciences Division, Oak Ridge National Laboratory, Tennessee, United States.
CSR Disclosure Efforts by Stock Exchanges	Above mean	The Initiative for Responsible Investment believes that environmental and social disclosure is a key enabler of responsible investment. CSR Disclosure Efforts by Stock	Hauser Institute for Civil Society (http://hausercenter.org/iri/wp-content/uploads/2011/0

		Exchanges are important in facilitating growth in the field.	8/CSR-Disclosure-Updates-4-18-14.pdf)
CSR Disclosure Efforts by Governments	Above mean	The Initiative for Responsible Investment believes that environmental and social disclosure is a key enabler of responsible investment. CSR Disclosure Efforts by Governments are important in facilitating growth in the field.	Hauser Institute for Civil Society (http://hausercenter.org/iri/wp-content/uploads/2011/08/CSR-Disclosure-Updates-4-18-14.pdf)

Table 7: Composition of Social and Economic Performance and Risk (SPR and EPR)

Panel A: Composition of Social Performance and Risk (SPR)

Social Performance/ Risk Question	Evaluation of Social Performance/ Risk	Explanation	Source
Has the company received an award for its social, ethical, community, or environmental activities or performance?	Yes = 1; No = 0	Corporate Social Responsibility awards or rankings received by the reporting organization are considered.	Thomson Reuters ASSET4 database
Is the company under the spotlight of the media because of a controversy linked to bribery and corruption, political contributions, improper lobbying, money laundering, parallel imports or any tax fraud?	Yes = 1; No = 0	Data on whether the reporting organization is openly criticized by the media because of issues around bribery, corruption, political contributions, improper lobbying, money laundering, parallel imports or tax fraud.	Thomson Reuters ASSET4 database

Panel B: Composition of Economic Performance and Risk (EPR)

Economic Performance/ Risk Formula	Evaluation of Economic Performance/ Risk	Explanation	Source
Return on Asset = Net Income + [Interest Expense × (1 – Tax Rate)] / Average Total Assets	Measures the profit earned by a bank through the use of all its capital	A higher Return on Total Assets is increasing long-term performance of the bank.	Bloomberg
Return On Common Equity (in percentage) = (Net Income / Average Total Common Equity)	Measures how much value the bank created with the investment of shareholder's money	A higher Return on Common Equity is a sign of high profitability to the shareholders of the bank. However, if the Return on Asset does not increase at the same time, it may be a sign of risky debt management to boost equity investors' short-term profit at the expense of debt investors' long-term profit.	Bloomberg

Variance in Total Business Volume = (Total Off-Balance Sheet Items + Total Assets)(year t+1) / (Total Off-Balance Sheet Items + Total Assets)(year t)	Measures the yearly change in total on- plus off-balance sheet assets.	A sharp decrease in total business volume from one year to the next indicates both a very volatile and a highly risky off-balance sheet business model of the bank.	BankScope
Impaired Loan Ratio = Impaired Loans/ Gross Loans	Measures the credit quality of the bank in comparison with other banks and over time.	Lending remains the primary business line for the banking industry, and credit quality remains the predominant source of risk.	BankScope

Table 8: Summary Statistics (Entire Panel)

	Observations	*Mean*	*Std. Dev.*	*Min*	*Max*
ESG Banking Governance Index	2339	5.557503	6.065335	0	21
Return on Assets	2480	.4225806	.4940695	0	1
Return on Common Equity	2471	.5422906	.4983091	0	1
Variation in Total Business Volume	1987	.1140815	.2463844	-.7509375	2.215044
Impaired Loan Ratio	2146	3.646808	4.12161	.033	44.836
ESG-Award	1995	.5062657	.5000861	0	1
Reputational Risk	1995	.1709273	.3765398	0	1
Size (logAssets)	2516	11.29767	1.544746	5.313303	15.11018
Long-term debt to equity	1896	42.76781	28.57201	.02	90.05
Tier 1 Capital Ratio	2155	11.74495	4.432304	-6	83.4
RWAs/Total Assets	2187	.6139702	.2315119	.0006605	5.049456
Net Charge-Offs to Loans	1534	.7109171	.9695181	-1.4353	9.0666
Provisions for Loan Losses / Net Interest Income	2458	21.17398	31.49496	-80.3007	582.3486
Provisions for Loan Losses / Total Loans	2429	.0097286	.0175075	-.1030737	.5037449
Deposits to Funding	2489	75.57983	17.72627	.7512	100
Commercial Loans / Total Loans	1514	.5146327	.2271944	.000154	1.549024
Long-term Borrowings / Total Liabilities	2369	.1079266	.1226452	2.93e-06	.9947281
Off-balance sheet commitments / Total Assets	1985	1725.15	76811.17	7.66e-06	3422195
Bank Financial Score	2610	6.717625	1.760354	0	11
Banking Sector Score	2710	2.049077	1.124655	0	5

National Economy Score	2710	2.89631	1.248086	0	5

Table 8 reports descriptive statistics for the variables used in the regression analysis.

Table 9: Correlations among Key Variables

	ESG-Award	Reputa-tional Risk	Variation in Business Volume	Impaired Loan Ratio	Return on Assets	Return on Equity	ESG Banking Governance (t-1)
ESG Banking Governance (t-1)	0.3934*	0.4218*	-0.1616*	0.1099*	-0.2131*	-0.0218	1.0000
Bank Financial Score (t-1)	-0.1594*	-0.2940*	0.1136*	-0.2979*	0.2902*	0.2091*	-0.3051*
National Economy Score (t-1)	-0.0773*	0.1037*	-0.0209	-0.3460*	-0.1408*	-0.1476*	-0.0769*
Banking Sector Score (t-1)	-0.0765*	0.0347	-0.1317*	-0.0786*	-0.3364*	-0.3564*	0.0978*
Size (t-1)	0.3884*	0.4564*	-0.1923*	0.0127	-0.3299*	-0.0980*	0.6814*

Table 9 presents pair-wise correlations between the social and economic performance and risk measures of ESG effectiveness, the ESG Banking Governance Index and its bank financial and country environment determinants. We use an asterisk (*) to denote statistical significance at the 10% level.

Table 10: Univariate Comparison of High vs. Low ESG Governance Banks

	High ESG BGI=0	High ESG BGI=1	Difference	p-value	No. of observations of High ESG=0	No. of observations of High ESG=1
ESG-Award	.2622081	.7245964	-.4623883***	0.0000	942	1053
Reputational Risk	.0626327	.2678063	-.2051736***	0.0000	942	1053
Return on Assets	.470233	.3807721	.0894608***	0.0000	1159	1321
Return on Equity	.5215146	.5607334	-.0392188*	0.0508	1162	1309
Variation in Business Volume	.1208518	.1072496	.0136022	0.2186	998	989
Impaired Loan Ratio	3.358288	3.91509	-.5568017	-.5568017	1034	1112
Bank Financial Score (t-1)	7.106713	6.312991	.7937216***	0.0000	1162	1196
National Economy Score (t-1)	3.014694	2.821967	.1927268***	0.0001	1225	1223
Banking Sector Score (t-1)	2.003265	2.151838	-.1485723***	0.0012	1225	1223
Size (t-1)	10.48532	12.02335	-1.538035***	0.0000	1104	1152

Table 10 presents a univariate comparison of bank characteristics between banks with high ESG versus those with low ESG. We define the dummy variable High ESG to identify, in each year, banks whose ESG Banking Governance score is greater than the median value of ESG across all banks during the year. High ESG = 1 identifies banks with a high ESG Banking Governance score, whereas High ESG = 0 identifies banks with a low ESG Banking Governance score. We use ***, **, and * to denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 11: Determinants of ESG Banking Governance Index

Panel A: Linear and Non-linear relationship between banks' ESG Banking Governance Index (ESG BGI) and their Bank Financial Score (BFS) and Banking Sector Score (BSS)

	I	II	III
Main Variables of Interest:			
BFS (t-1)	-1.1454***	-1.1155***	-0.9747***
	(-14.8846)	(-19.4491)	(-24.4077)
BSS (t-1)		0.9121***	1.3898***
		(5.1509)	(6.3357)
BFS x BSS			-0.0853***
			(-7.7980)
Constant	11.3096***	7.3581***	7.2782***
	(15.3792)	(27.0539)	(24.7524)
YEAR FE	YES	YES	YES
SPECIALISATION FE	YES	YES	YES
FIRM FE	NO	NO	NO
Observations	2,149	2,149	2,149
Adjusted R-squared	0.2030	0.2269	0.2309

Panel B: Linear and Non-linear relationship between banks' ESG Banking Governance Index (ESG BGI) and their Bank Financial Score (BFS) and National Economy Score (NES)

	I	II	III
Main Variables of Interest:			
BFS (t-1)	-1.1454***	-1.1244***	-0.8181***
	(-14.8846)	(-20.9560)	(-11.0492)
NES (t-1)		-0.3641	0.3629
		(-0.6548)	(0.9478)
BFS x NES			-0.1227***
			(-3.8731)
Constant	11.3096***	11.6791***	9.3537***
	(15.3792)	(9.2183)	(15.5389)
YEAR FE	YES	YES	YES
SPECIALISATION FE	YES	YES	YES
FIRM FE	NO	NO	NO
Observations	2,149	2,149	2,149
Adjusted R-squared	0.2030	0.2071	0.2202

This table presents the results of (panel) regressions estimated with robust standard errors clustered at the bank specialization level. T-statistics are presented in parentheses. The regressions include year- and specialization effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 12: Pre-, Crisis- and Post-Crisis Social Performance and Risk Effects of ESG Banking Governance Index

Panel A: Effect of Pre-, Crisis- and Post-Crisis ESG Banking Governance Index (ESG BGI) on ESG-Award Achievements

	I	II	III	IV	V	VI	VII
Main Variables of Interest:							
ESG BGI	0.0375***	0.0399***	0.0420***	0.0433***	0.0341***	0.0345***	0.0301***
	(49.9110)	(54.5405)	(35.6762)	(28.6573)	(17.5992)	(19.9423)	(45.2713)
PRE	0.2447***	0.3619***					0.3608***
	(19.9178)	(20.8219)					(11.0559)
CRISIS			-0.2968***	-0.3736***			
			(-25.9969)	(-23.4903)			
POST					-0.3153***	-0.4294***	-0.0237
					(-11.7382)	(-11.7912)	(-0.4744)
ESG BGI x PRE	0.0128*	0.0071					0.0169**
	(1.8618)	(1.2188)					(2.6484)
ESG BGI x CRISIS			-0.0152***	-0.0133***			
			(-11.3584)	(-6.9076)			
ESG BGI x POST					0.0068***	0.0084***	0.0128***
					(3.4398)	(5.0246)	(7.5635)
Control Variables:							
BFS (t-1)		0.0053		0.0044		0.0036	0.0048
		(0.3807)		(0.3152)		(0.2558)	(0.3345)
BSS (t-1)		-0.0706***		-0.0707***		-0.0722***	-0.0702***
		(-38.0947)		(-29.6317)		(-28.7273)	(-36.3532)
NES (t-1)		0.0118		0.0129		0.0124	0.0129
		(1.2759)		(1.7402)		(1.6826)	(1.6625)
Constant	-0.0220	0.1103	0.2562***	0.5013***	0.2760***	0.5451***	0.1207
	(-1.0613)	(0.7628)	(17.1209)	(4.7339)	(22.7412)	(4.9439)	(1.1971)
YEAR FE	YES	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO	NO
Observations	1,995	1,818	1,995	1,818	1,995	1,818	1,818
Adjusted R-squared	0.2769	0.2979	0.2805	0.3018	0.2763	0.2995	0.3016

Panel B: Effect of Pre-, Crisis- and Post-Crisis ESG Banking Governance Index (ESG BGI) on Reputational Risk

	I	II	III	IV	V	VI	VII
Main Variables of Interest:							
ESG BGI	0.0246***	0.0218***	0.0261***	0.0229***	0.0251***	0.0198***	0.0184***
	(8.9329)	(12.1743)	(10.8053)	(11.7478)	(20.9644)	(16.7630)	(17.7975)
PRE	-0.0242	-0.0368					0.0418
	(-0.7154)	(-0.5696)					(1.2791)
CRISIS			-0.0614	-0.0452			
			(-1.3253)	(-1.1385)			
POST					0.0003	0.0142	0.0708*
					(0.0073)	(0.2242)	(2.0657)
ESG BGI x PRE	0.0070	0.0021					0.0056***
	(1.1839)	(0.8830)					(3.8462)
ESG BGI x CRISIS			-0.0039**	-0.0046**			
			(-3.3049)	(-2.7972)			
ESG BGI x POST					0.0002	0.0030	0.0045**
					(0.0761)	(1.4780)	(2.3814)
Control Variables:							
BFS (t-1)		-0.0374**		-0.0377**		-0.0380**	-0.0376**
		(-2.9655)		(-2.9898)		(-2.9539)	(-2.9356)
BSS (t-1)		-0.0102		-0.0102		-0.0107	-0.0101
		(-0.7046)		(-0.6767)		(-0.7192)	(-0.6829)
NES (t-1)		0.0464***		0.0467***		0.0466***	0.0467***
		(6.3767)		(6.7356)		(6.7956)	(6.6662)
Constant	-0.0885***	0.2528**	-0.0938	0.2244***	-0.0927*	0.2401***	0.1774**
	(-19.2706)	(2.9973)	(-1.8191)	(12.9412)	(-2.1346)	(9.8449)	(3.1547)
YEAR FE	YES	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO	NO
Observations	1,995	1,818	1,995	1,818	1,995	1,818	1,818
Adjusted R-squared	0.1759	0.2180	0.1755	0.2188	0.1748	0.2184	0.2184

This table presents the results of multivariate regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. The regressions include year- and specialization effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 13: Impact of short- and long-term ESG Banking Governance Index (ESG BGI) on Social Performance and Risk

Panel A: Impact of short- and long-term ESG Banking Governance Index (ESG BGI), Bank Financials and Country Environment on ESG Award Achievements

	I	II	III
Main Variables of Interest:			
ESG BGI (t-1)	0.0463***	0.0424***	0.0409***
	(31.6076)	(44.0202)	(43.2971)
BFS (t-1)		0.0138	0.0168
		(1.2293)	(1.7958)
BSS (t-1)		-0.0632***	-0.0601***
		(-12.9017)	(-10.9656)
NES (t-1)		0.0247*	0.0228*
		(2.3367)	(2.2741)
ESG BGI (t-3)	-0.0107***	-0.0045	-0.0056
	(-3.5043)	(-1.1391)	(-1.2568)
BFS (t-3)		-0.0173*	-0.0156*
		(-2.2025)	(-2.2225)
BSS (t-3)		0.0000	-0.0009
		(0.0047)	(-0.1127)
NES (t-3)		-0.0150	-0.0186
		(-0.9745)	(-1.3910)
Control Variables:			
Reputational Risk			0.1043***
			(4.7550)
Constant	0.3111***	0.6048**	0.5626**
	(6.4113)	(3.1301)	(3.3016)
YEAR FE	YES	YES	YES
SPECIALISATION FE	YES	YES	YES
FIRM FE	NO	NO	NO
Observations	1,475	1,420	1,420
Adjusted R-squared	0.2727	0.2800	0.2849

Panel B: Impact of short- and long-term ESG Banking Governance Index (ESG BGI), Bank Financials and Country Environment on Reputational Risk

	I	II	III
Main Variables of Interest:			
ESG BGI (t-1)	0.0167***	0.0151***	0.0120***
	(9.5631)	(12.8252)	(6.7126)
BFS (t-1)		-0.0288*	-0.0298**
		(-2.3476)	(-2.5435)
BSS (t-1)		-0.0289*	-0.0244
		(-2.1438)	(-1.6679)
NES (t-1)		0.0178	0.0160
		(1.6663)	(1.5402)
ESG BGI (t-3)	0.0120*	0.0100**	0.0103**
	(2.1077)	(3.0623)	(2.8929)

BFS (t-3)		-0.0168**	-0.0156**
		(-3.0721)	(-3.3379)
BSS (t-3)		0.0090	0.0090
		(1.4820)	(1.6169)
NES (t-3)		0.0345**	0.0356**
		(2.7081)	(2.9840)
Control Variables:			
ESG Award Achievements			0.0721***
			(4.1058)
Constant	-0.0264	0.4053**	0.3617**
	(-0.4850)	(2.8795)	(3.0756)
YEAR FE	YES	YES	YES
SPECIALISATION FE	YES	YES	YES
FIRM FE	NO	NO	NO
Observations	1,475	1,420	1,420
Adjusted R-squared	0.1900	0.2343	0.2395

This table presents the results of multivariate regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. The regressions include year- and specialization effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 14: Pre-, Crisis- and Post-Crisis Economic Performance and Risk Effects of ESG Banking Governance Index

Panel A: Effect of Pre-, Crisis- and Post-Crisis ESG Banking Governance Index (ESG BGI) on Banks' Return on Asset (RoA)

	I	II	III	IV	V	VI	VII
Main Variables of Interest:							
ESG BGI	-0.0153***	-0.0055**	-0.0171***	-0.0074**	-0.0203***	-0.0076***	-0.0040**
	(-4.6326)	(-2.4854)	(-4.7276)	(-2.3722)	(-24.2174)	(-5.5757)	(-2.3703)
PRE	-0.2381	-0.0137					-0.1183
	(-1.1389)	(-0.1054)					(-1.7806)
CRISIS			0.2970*	0.1517**			
			(2.0727)	(2.4517)			
POST					0.2602	0.0503	-0.1007
					(1.2066)	(0.3472)	(-1.3730)
ESG BGI x PRE	-0.0137**	-0.0113***					-0.0128***
	(-3.3380)	(-10.4893)					(-4.1594)
ESG BGI x CRISIS			0.0008	0.0034			
			(0.2554)	(0.8535)			
ESG BGI x POST					0.0053	0.0016	-0.0020
					(1.2686)	(0.4724)	(-0.4836)
Control Variables:							
BFS (t-1)		0.0657***		0.0661***		0.0663***	0.0656***
		(8.4048)		(9.0418)		(8.6132)	(8.6126)
BSS (t-1)		-0.1210***		-0.1212***		-0.1206***	-0.1212***
		(-6.4668)		(-6.4184)		(-6.4317)	(-6.3234)
NES (t-1)		-0.0410***		-0.0416***		-0.0410***	-0.0412***
		(-4.8928)		(-5.8369)		(-5.5101)	(-5.2705)
Constant	0.4036***	0.1853***	0.1322	0.1385	0.1383	0.1320	0.2929***
	(7.7391)	(4.5699)	(0.9042)	(1.7700)	(0.8953)	(1.4070)	(13.9177)
YEAR FE	YES	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO	NO
Observations	2,179	2,077	2,179	2,077	2,179	2,077	2,077
Adjusted R-squared	0.1130	0.2353	0.1103	0.2340	0.1112	0.2338	0.2350

Panel B: Effect of Pre-, Crisis- and Post-Crisis ESG Banking Governance Index (ESG BGI) on Banks' Return on Common Equity (RoE)

	I	II	III	IV	V	VI	VII
Main Variables of Interest:							
ESG BGI	-0.0007	0.0104***	0.0029	0.0125***	0.0092**	0.0212***	0.0147***
	(-0.1637)	(3.9669)	(0.6178)	(3.7004)	(3.3511)	(8.4515)	(8.2187)
PRE	-0.1329	0.1115*					0.0080
	(-1.1809)	(2.0841)					(0.5267)
CRISIS			0.0746	-0.0978***			
			(1.0178)	(-5.1755)			
POST					0.0881	-0.1589*	-0.0919
					(0.7390)	(-2.3216)	(-1.8421)
ESG BGI x PRE	0.0275***	0.0274***					0.0231***
	(36.4365)	(10.0550)					(5.4054)
ESG BGI x CRISIS			-0.0019	0.0021			
			(-0.6621)	(0.7387)			
ESG BGI x POST					-0.0105***	-0.0125***	-0.0059*
					(-4.7436)	(-8.4215)	(-2.1941)
Control Variables:							
BFS (t-1)		0.0600***		0.0585***		0.0587***	0.0599***
		(6.1962)		(5.7582)		(6.0651)	(6.3727)
BSS (t-1)		-0.1596***		-0.1605***		-0.1614***	-0.1602***
		(-10.5624)		(-9.9147)		(-10.2313)	(-10.3992)
NES (t-1)		-0.0177		-0.0174		-0.0189	-0.0185
		(-0.4746)		(-0.4482)		(-0.5026)	(-0.5037)
Constant	0.8593***	0.7779***	0.7920***	0.9960***	0.7807***	0.9745***	0.8895***
	(29.7746)	(11.6012)	(10.2654)	(7.9232)	(9.2838)	(7.7496)	(8.5807)
YEAR FE	YES	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO	NO
Observations	2,171	2,069	2,171	2,069	2,171	2,069	2,069
Adjusted R-squared	0.0833	0.2396	0.0728	0.2302	0.0762	0.2351	0.2401

Panel C: Effect of Pre-, Crisis- and Post-Crisis ESG Banking Governance Index (ESG BGI) on Banks' Variance in Total Business Volume

	I	II	III	IV	V	VI	VII
Main Variables of Interest:							
ESG BGI	-0.0047***	-0.0023***	-0.0026**	-0.0005	-0.0011	0.0026*	-0.0022
	(-13.0919)	(-4.1666)	(-3.1315)	(-0.9697)	(-0.8348)	(2.2505)	(-1.3438)
PRE	0.0930	0.1221					0.0379
	(1.2511)	(1.5842)					(0.3903)
CRISIS			-0.0598	-0.0872			
			(-0.9345)	(-1.2322)			
POST					-0.1356**	-0.1616**	-0.0839***
					(-2.8094)	(-3.1937)	(-3.6165)
ESG BGI x PRE	0.0153*	0.0167*					0.0165
	(2.1083)	(2.1265)					(1.8663)
ESG BGI x CRISIS			-0.0033	-0.0018			
			(-1.4979)	(-0.7763)			
ESG BGI x POST					-0.0033**	-0.0050***	-0.0002
					(-2.3899)	(-3.5174)	(-0.1215)
Control Variables:							
BFS (t-1)		0.0150***		0.0139**		0.0143**	0.0150***
		(3.9099)		(2.8295)		(3.1634)	(3.8838)
BSS (t-1)		-0.0284***		-0.0277***		-0.0289***	-0.0284***
		(-13.6213)		(-9.6149)		(-12.9064)	(-12.4219)
NES (t-1)		0.0004		-0.0001		-0.0006	0.0004
		(0.2188)		(-0.2206)		(-0.6380)	(0.1955)
Constant	0.0023	-0.0565	0.1364***	0.1214***	0.1355***	0.1176***	0.0279
	(0.2086)	(-1.6166)	(3.4099)	(10.7843)	(3.4455)	(9.4078)	(0.5238)
YEAR FE	YES	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO	NO
Observations	1,860	1,792	1,860	1,792	1,860	1,792	1,792
Adjusted R-squared	0.1786	0.2017	0.1671	0.1868	0.1674	0.1900	0.2013

Panel D: Effect of Pre-, Crisis- and Post-Crisis ESG Banking Governance Index (ESG BGI) on Banks' Impaired Loan Ratio

	I	II	III	IV	V	VI	VII
Main Variables of Interest:							
ESG BGI	0.0568***	-0.0342**	0.0548***	-0.0403***	-0.0388	-0.1482***	-0.1017***
	(3.7020)	(-2.9378)	(3.5360)	(-3.6180)	(-0.9174)	(-22.8363)	(-18.7511)
PRE	-1.4154**	-2.0970***					-2.2444***
	(-2.6840)	(-6.3594)					(-5.7755)
CRISIS			2.0708***	2.9836***			
			(17.4726)	(9.9652)			
POST					1.4160**	2.3368***	-0.2933
					(2.5941)	(6.5433)	(-0.5428)
ESG BGI x PRE	-0.1537*	-0.2261***					-0.1593***
	(-2.1158)	(-6.4303)					(-5.0141)
ESG BGI x CRISIS			-0.0652*	-0.0586***			
			(-2.3106)	(-6.4731)			
ESG BGI x POST					0.1166*	0.1353***	0.0879***
					(2.2322)	(8.1724)	(7.8649)
Control Variables:							
BFS (t-1)		-0.6946***		-0.6777***		-0.6887***	-0.6969***
		(-3.8130)		(-3.6844)		(-3.8370)	(-3.8819)
BSS (t-1)		0.1643***		0.1698***		0.1822***	0.1769***
		(4.6739)		(4.1822)		(4.6106)	(4.9303)
NES (t-1)		-1.0693**		-1.0578**		-1.0549**	-1.0622**
		(-3.2738)		(-3.0979)		(-3.2490)	(-3.3240)
Constant	2.0733***	10.2220***	0.2244	7.1606**	0.4346**	7.5170**	10.2752***
	(4.4993)	(4.0220)	(1.7106)	(3.0499)	(3.3667)	(3.2735)	(5.1282)
YEAR FE	YES	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO	NO
Observations	1,943	1,803	1,943	1,803	1,943	1,803	1,803
Adjusted R-squared	0.1092	0.2596	0.1060	0.2516	0.1107	0.2588	0.2620

This table presents the results of multivariate regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. The regressions include year- and specialization effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 15: Impact of short- and long-term ESG Banking Governance Index (ESG BGI) on Economic Performance and Risk

Panel A: Impact of short- and long-term ESG Banking Governance Index (ESG BGI), Bank Financials and Country Environment on Banks' Return on Asset (RoA)

	I	II	III
Main Variables of Interest:			
ESG BGI (t-1)	-0.0188***		0.0079*
	(-5.0744)		(2.0180)
BFS (t-1)			0.0557***
			(4.4404)
BSS (t-1)			-0.0392***
			(-5.3906)
NES (t-1)			-0.0440*
			(-2.0796)
ESG BGI (t-3)		-0.0223***	-0.0176**
		(-4.7135)	(-2.8339)
BFS (t-3)			0.0071***
			(4.5650)
BSS (t-3)			-0.0953***
			(-6.2709)
NES (t-3)			0.0138
			(1.4207)
Constant	0.0906	-0.1259***	-0.1242
	(1.0338)	(-5.9377)	(-1.1946)
YEAR FE	YES	YES	YES
SPECIALISATION FE	YES	YES	YES
FIRM FE	NO	NO	NO
Observations	1,982	1,491	1,491
Adjusted R-squared	0.1262	0.1394	0.2546

Panel B: Impact of short- and long-term ESG Banking Governance Index (ESG BGI), Bank Financials and Country Environment on Banks' Return on Common Equity (RoE)

	I	II	III
Main Variables of Interest:			
ESG BGI (t-1)	-0.0015		0.0238***
	(-0.3109)		(11.5626)
BFS (t-1)			0.0635***
			(5.9842)
BSS (t-1)			-0.0921***
			(-9.0168)
NES (t-1)			0.0108
			(1.2177)
ESG BGI (t-3)		-0.0080	-0.0151***
		(-1.5752)	(-6.5477)
BFS (t-3)			0.0120***
			(7.2826)

BSS (t-3)			-0.0892***
			(-12.6599)
NES (t-3)			-0.0147
			(-0.4366)
Constant	0.8492***	0.6697***	0.6409***
	(21.4692)	(62.0141)	(6.6763)
YEAR FE	YES	YES	YES
SPECIALISATION FE	YES	YES	YES
FIRM FE	NO	NO	NO
Observations	1,975	1,485	1,485
Adjusted R-squared	0.0699	0.0843	0.2616

Panel C: Impact of short- and long-term ESG Banking Governance Index (ESG BGI), Bank Financials and Country Environment on Banks' Variance in Total Business Volume

	I	II	III
Main Variables of Interest:			
ESG BGI (t-1)	-0.0039***		-0.0026***
	(-23.9730)		(-6.0613)
BFS (t-1)			0.0158***
			(12.7867)
BSS (t-1)			-0.0166***
			(-6.0960)
NES (t-1)			0.0181*
			(2.1154)
ESG BGI (t-3)		-0.0056***	-0.0002
		(-17.5248)	(-0.2960)
BFS (t-3)			-0.0045***
			(-4.0251)
BSS (t-3)			-0.0137***
			(-4.0002)
NES (t-3)			-0.0191*
			(-2.2715)
Constant	0.1592***	0.0781**	0.1012***
	(4.0860)	(3.2807)	(9.9774)
YEAR FE	YES	YES	YES
SPECIALISATION FE	YES	YES	YES
FIRM FE	NO	NO	NO
Observations	1,802	1,406	1,353
Adjusted R-squared	0.1239	0.0607	0.0895

Panel D: Impact of short- and long-term ESG Banking Governance Index (ESG BGI), Bank Financials and Country Environment on Impaired Loan Ratio

	I	II	III
Main Variables of Interest:			
ESG BGI (t-1)	0.0623***		-0.1101***
	(4.2351)		(-6.0898)

BFS (t-1)			-0.6033***
			(-6.0144)
BSS (t-1)			-0.0640
			(-0.7108)
NES (t-1)			-1.0411***
			(-7.0390)
ESG BGI (t-3)		0.0976**	0.0831*
		(3.2660)	(2.0683)
BFS (t-3)			-0.2414*
			(-1.9099)
BSS (t-3)			0.3840***
			(3.5886)
NES (t-3)			-0.2109
			(-0.7624)
Constant	-0.2700	-0.1876	8.6147***
	(-1.7610)	(-0.4863)	(3.8651)
YEAR FE	YES	YES	YES
SPECIALISATION FE	YES	YES	YES
FIRM FE	NO	NO	NO
Observations	1,804	1,412	1,365
Adjusted R-squared	0.1108	0.1052	0.2785

This table presents the results of multivariate regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. The regressions include year- and specialization effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 16: Test of validity of ESG Banking Governance Index as proxy for Sustainable Bank Culture

Panel A: Determinants of ESG Structure Score

	I	II	III	IV	V	VI
Main Variables of Interest:						
BFS (t-1)	-0.2536*	-0.2481**	-0.2522**	-0.1409***	-0.2071**	-0.1169***
	(-2.3597)	(-2.6009)	(-2.5541)	(-7.1142)	(-2.5627)	(-6.7328)
NES (t-1)		-0.0749		0.1600*		0.1019
		(-0.3536)		(2.0382)		(1.3731)
BSS (t-1)			0.3501**		0.4954***	0.4337***
			(3.4902)		(3.5574)	(4.0963)
BFS x NES				-0.0450		-0.0469
				(-1.6337)		(-1.5154)
BFS x BSS					-0.0291**	-0.0082
					(-3.3138)	(-0.8186)
Constant	3.6047**	3.6744**	2.1868***	2.9604***	2.1876***	1.4021***
	(3.4522)	(2.9481)	(3.6968)	(3.6328)	(3.7533)	(10.8434)
YEAR FE	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO
Observations	2,100	2,100	2,100	2,100	2,100	2,100
Adjusted R-squared	0.1462	0.1466	0.1612	0.1530	0.1626	0.1710

Panel B: Determinants of ESG Reporting Score

	I	II	III	IV	V	VI
Main Variables of Interest:						
BFS (t-1)	-0.1651***	-0.1494***	-0.1634***	-0.0823***	-0.1404***	-0.0701**
	(-10.8756)	(-12.7480)	(-10.7564)	(-3.6416)	(-9.8889)	(-3.2979)
NES (t-1)		-0.2127		-0.0651		-0.0974
		(-1.4020)		(-0.5648)		(-0.9278)
BSS (t-1)			0.2216***		0.2958***	0.2784***
			(4.7007)		(8.5540)	(6.9681)
BFS x NES				-0.0283***		-0.0314**
				(-3.6060)		(-2.9371)
BFS x BSS					-0.0149***	0.0006
					(-5.1004)	(0.0653)
Constant	1.1125***	1.3085***	0.2061	0.8634***	0.2083	-0.2918
	(13.1761)	(6.1562)	(1.1211)	(8.3630)	(1.1068)	(-0.8753)
YEAR FE	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO
Observations	2,149	2,149	2,149	2,149	2,149	2,149
Adjusted R-squared	0.1014	0.1208	0.1199	0.1285	0.1209	0.1571

Panel C: Determinants of ESG Business Activities Score

	I	II	III	IV	V	VI
Main Variables of Interest:						
BFS (t-1)	-0.2560***	-0.2462***	-0.2529***	-0.1604***	-0.2425***	-0.1516***
	(-9.1985)	(-12.7472)	(-12.0495)	(-8.3676)	(-13.5035)	(-6.4243)
NES (t-1)		-0.1332		0.0555		0.0169
		(-0.6988)		(0.4061)		(0.1365)
BSS (t-1)			0.4160***		0.4496***	0.4023***
			(3.8053)		(3.8126)	(3.5919)
BFS x NES				-0.0361**		-0.0447**
				(-3.1899)		(-2.9238)
BFS x BSS					-0.0067**	0.0137
					(-3.3968)	(1.5339)
Constant	1.6140***	1.7367***	-0.0878	1.1675***	-0.0868	-0.8179
	(6.4057)	(3.9813)	(-0.3206)	(4.5129)	(-0.3152)	(-1.6668)
YEAR FE	YES	YES	YES	YES	YES	YES
SPECIALISA-TION FE	YES	YES	YES	YES	YES	YES
FIRM FE	NO	NO	NO	NO	NO	NO
Observations	2,149	2,149	2,149	2,149	2,149	2,149
Adjusted R-squared	0.0865	0.0916	0.1334	0.1006	0.1332	0.1587

This table presents the results of multivariate regressions estimated with robust standard errors clustered at the country level. T-statistics are presented in parentheses. The regressions include year- and specialization effects. ***, **, * denote 1%, 5% and 10% statistical significance (two-tailed).

Table 17: Correlations between ESG Banking Governance Index and Bank Financials using Above/ Below Mean and Real Values

	Bank Financials at Above/ Below Mean Values	Bank Financials at Real Values
ESG-Banking Governance Index	1.0000	1.0000
Size (logAssets)	0.6613*	0.5921*
Long-term debt to equity	-0.3246*	-0.3979*
Return on Assets	-0.1665*	-0.1243*
Tier 1 Capital Ratio	-0.1262*	-0.0907*
RWAs/Total Assets	-0.3297*	-0.3681*
Net Charge-Offs to Loans	0.0636*	0.0898*
Provisions for Loan Losses / Net Interest Income	0.0682*	0.1048*
Provisions for Loan Losses / Total Loans	0.0458*	0.0198
Deposits to Funding	-0.3700*	-0.4401*
Commercial Loans / Total Loans	-0.2448*	-0.2297*
Long-term Borrowings / Total Liabilities	0.2104*	0.1373*
Off-balance sheet commitments / Total Assets	0.1067*	-0.0230

Figure 1: Model of Determinants and Effects of the ESG-BGI Index

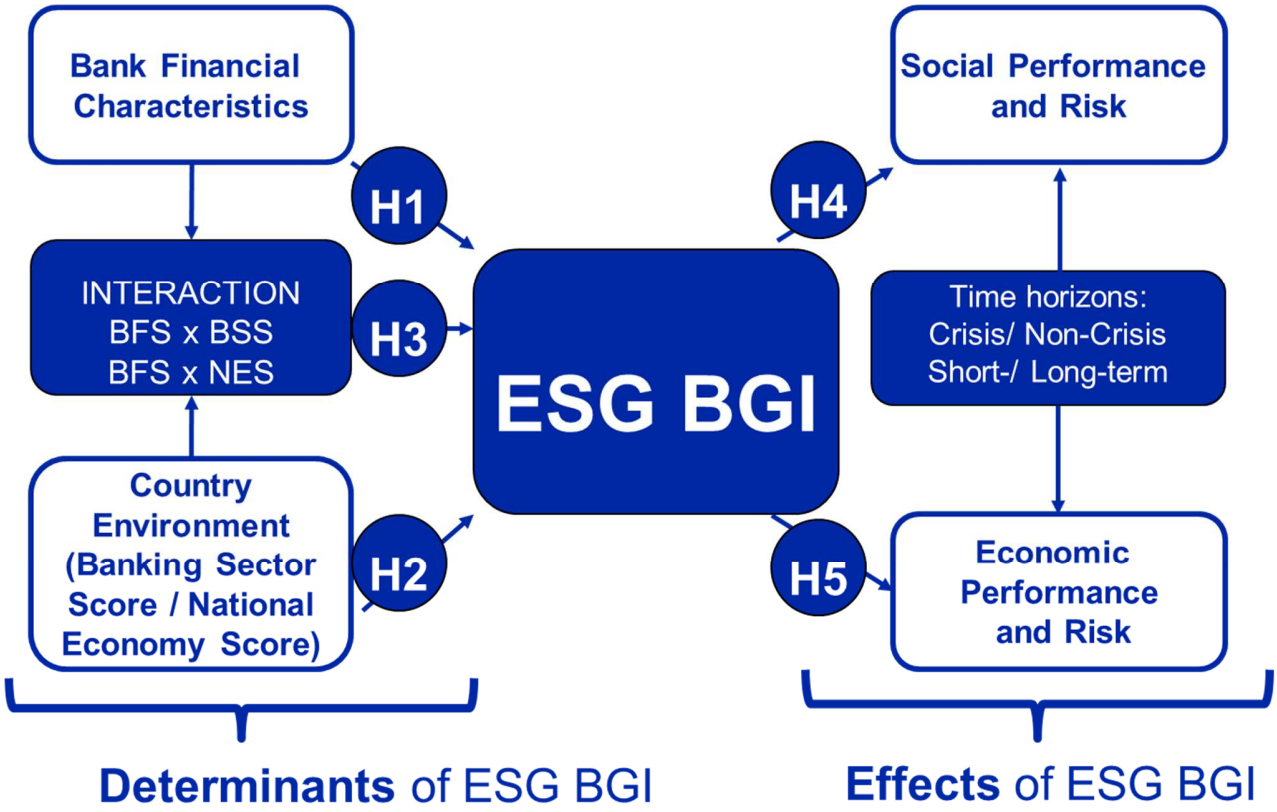


Figure 2: Trends in ESG Banking Governance Index and Its Component Scores

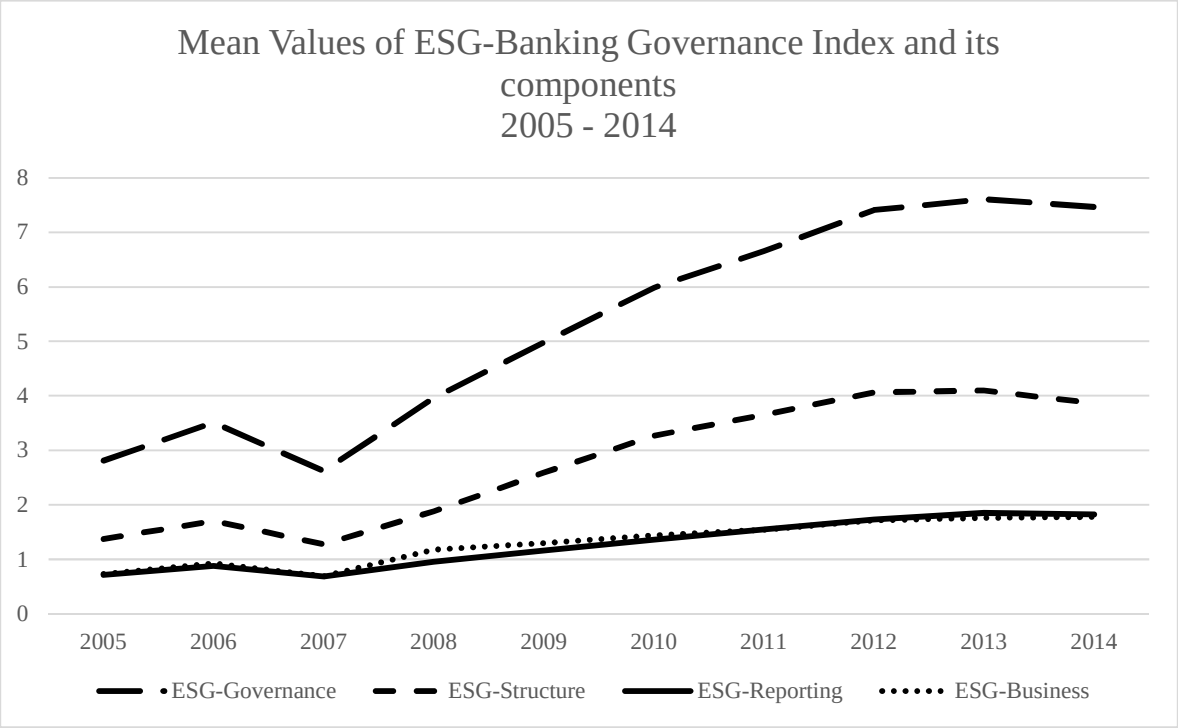
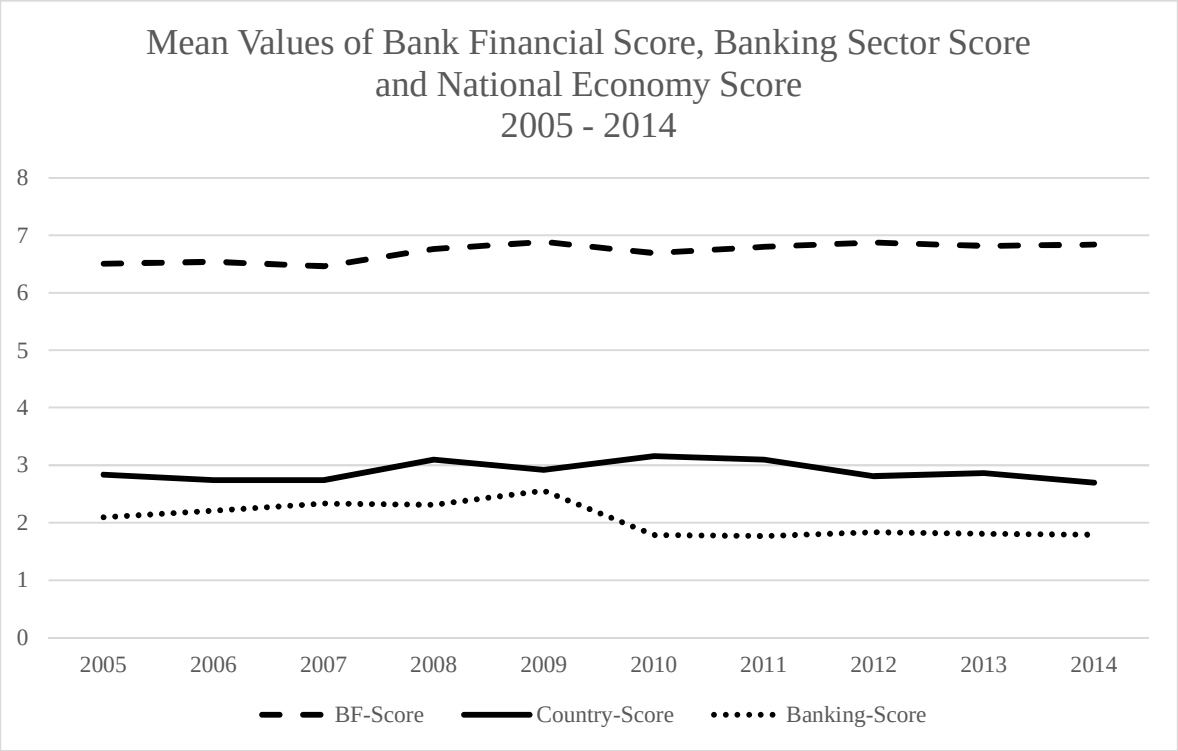


Figure 3: Trends in Bank Financials and Country Environment



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Part III: Concluding Essay

Conclusion

Ensuing from the legacy of Adam Smith who already proved a good intuition for the complexity of the connection between free private markets and public regulation, the essay collection at hand set itself the goal of contributing to the complicated and oft-discussed question on the optimal interplay between market discipline and public policy under various conditions. The first paper – "Individual Morality or Economic Framework?" – relied on a case study assessment of experiments in behavioral economics. It argued that market discipline and public policy are both needed for implementing specific economic and social results. The second paper – "Sustainability Disclosure in the Banking Industry" – relied on a framework specifically constructed for the paper and on a case-study assessment of the sustainability disclosure of two sample banks. It argued that both market discipline in monitoring banks' non-financial disclosures as well as sector-specific disclosure guidelines are needed. The third paper – "Voluntary Standards versus Mandatory Regulations?" – built an empirical study on the effects of mandatory disclosure regulations on the sustainability disclosure level. It argued that market discipline is more effective for voluntarily disclosing firms, whereas mandatory policy may be more effective for voluntarily non-disclosing firms. The fourth paper – "Determinants and Effects of ESG Banking Governance" – constructed an environmental, social, and governance (ESG) index for banks and evaluated the factors behind the index and its impact on bank performance. This paper argued that market discipline is most effective if tailored to bank financial characteristics and targeting long-term performance, whereas public policy is most effective if it is implemented in a sector-specific way.

Beside the research goals the individual papers pursued, the main goal of this essay collection as a whole was to apply the insights of recent literature on the interplay between market discipline and public policy in general to the banking sector in particular. In this vein, the second and the third paper were dedicated to investigate the existence of unexpected negative effects of mandatory disclosure guidelines in the banking industry. The goal of such guidelines is to increase a company's level of disclosure. The general research on the interplay of market discipline and public policy brought to the fore that disclosure guidelines can have the effect of crowding-out companies' voluntary disclosure of relevant information. After such guidelines have been implemented, companies tend to "only" publish the information that they are obliged to publish whereas before, on a voluntary basis, some of them may have provided more detailed disclosures.

Paper two and three showed that this effect can also apply to the banking sector. Hence, the essay collection cautions to believe in the enforcement of certain upside effects which might be desired from a political perspective by regulation. Such regulation can trigger unexpected side effects for a majority group which is then limited in the signaling potential of their disclosures.

Also the fourth paper applies knowledge about regulation in general to the banking industry in particular. Recent years have heralded a drive for integrating environmental, social, and governance factors ('ESG-factors') into the business models of companies. While there are suggestions on how this could be done for companies in general, there has been little research so far on what it means to include these factors into the business model of banks. Often, it is assumed that ESG guidelines can be implemented in a one-size-fits-all-companies manner. The essay collection at hand however cautions to believe that what might be fitting to companies in general must be fitting to banks at the same time. Therefore, paper four developed an index of ESG-factors that is tailor-made to the special demands of the banking industry.

Besides making recent research on the interplay between market discipline and public policy for companies as such fruitful to the banking sector in particular, the essay collection, as a whole, underlined the complexity of the connection between market discipline and public policy. Paper one showed that finding a fitting balance between market discipline and public policy cannot be circumvented by a belief in implicit obligations for coordinating choice problems. The findings of paper two and three also emphasize the complexity of the issue by demonstrating that unexpected side effects of regulation are also possible in the banking industry. By determining why the banking industry needs to be treated differently than other industries when trying to integrate ESG-factors into the decision base of bank managers, paper four, once again, underlined the complexity of the interplay between market discipline and public policy. This issue needs to be treated individually not only, as was referenced in the introduction, by a country's or even a region's economic environment, the current point on the economic cycle, the difference between developed and un- or under-developed countries, or a company's culture, but also with regards to the sector one is dealing with.

While the essay collection tried to contribute specific suggestions that need to be proven in practice, it underscored that the quest for the optimal interplay between market discipline and public policy under different economic conditions is an issue that will accompany economic

research for the foreseeable future. Adam Smith’s legacy regarding the relation of private markets and public policy is still pertinent.

Part IV: Appendix

Curriculum Vitae

PERSONAL DATA

Name	Diana Festl-Pell
Date of Birth	September 8, 1981
Nationality	German

EDUCATION

2010 – 2016	PhD Student, Chair of Banking, Department of Banking and Finance, University of Zurich, Switzerland
2012 – 2013	Guest Researcher at the Booth School of Business of the University of Chicago, USA
2005 – 2007	Master of Arts in Accounting and Finance, University of St. Gall, Switzerland
2004 – 2005	Bachelor of Arts (Hons) in Accounting and Finance, Bristol Business School of the University of the West of England, UK
2002 – 2004	Studies in International Business, University of Applied Sciences Nuremberg, Germany

PROFESSIONAL EXPERIENCE

09.2015 - Present	Junior Professor in Accounting, Finance and Management, Karlshochschule International University, Germany
09.2011 – Present	Lecturer in Context Studies, University of St. Gall, Switzerland
03.2010 – 02.2016	Research Assistant and Lecturer, Chair of Banking, Department of Banking and Finance, University of Zurich, Switzerland
10.2010 – 04.2011	Project Manager, Graduate Program in Financial Management, ZHAW Zurich University of Applied Sciences, Switzerland
07.2008 – 02.2010	Senior Assistant, System and Process Assurance Financial Services, PricewaterhouseCoopers AG, Switzerland
08.2007 – 07.2008	Business Consultant, Financial Services Knowledge Hub, The Boston Consulting Group, Switzerland
06.2006 – 07.2007	Affiliated Student Researcher, International Reporting Group, PricewaterhouseCoopers AG, Germany
09.2001 – 08.2005	Trainee Promotion Program with integrated vocational training in Industrial Management, BMW Group, Germany/Singapore/UK